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SOME PRINCIPLES OF MEDICAL ETHICS APPLIED TO THE PRACTICE OF OPHTHALMOLOGY

CHAIRMAN'S ADDRESS

ALBERT C. SNELL, M.D.

ROCHESTER, N. Y.

Since my election to the chairmanship of this section, I have received considerable correspondence with reference to certain questionable practices of ophthalmologists in the dispensing of ophthalmic lenses. Also there has appeared in a high class nationally distributed magazine a critical and informative article setting forth principally those practices which are no credit to the profession. The time, therefore, seems opportune to examine some common methods of practices and to compare them with the historically established ethical principles of our profession.

The principles of medical ethics are just as binding on those practicing ophthalmology as they are on all other members of the medical profession. There are, however, some situations which are peculiar to the special practice of ophthalmology. These situations present unusual temptations to violate our best ethical standards. It is my purpose in this address to bring anew to your attention some of these principles of ethics and apply them to some common methods of practice in order that these methods may be analyzed. I hope that each individual ophthalmologist will compare his method of practice with that type of ethical conduct which is demanded by the medical profession.

It is much to be desired that both individual ophthalmologists and organized groups will strive to correct any unethical conduct that may be found to prevail. Some forms of practice not only are bringing disrespect and dishonor to the profession but much positive harm as well. When ethical principles and ideals of the medical profession are not respected by even a small group of ophthalmologists, opprobrium is placed on the entire profession, the ethical and the unethical alike. Every individual ophthalmologist becomes the object of derision. This is illustrated by the article mentioned, which sets forth information of certain under-cover, questionable trade practices existing between dispensing opticians and ophthalmologists. For example, the article informs the public that the dispensing optician "may sell direct to the patient, under an arrangement which would shock that patient rudely if he understood it." The article states further that the patient may have been deluded into thinking that the wholesale price is charged by the dispenser, whereas a full retail price is collected "which he later splits, on the quiet, with your physician." This article also states that "kickback," "furtive fee-splitting" is not exceptional; that the ophthalmologist pockets a retail price for services which he does not render. This practice sometimes is given the softer and more subtle term of a "differential." All these forms of participation in the profits from the supplying of ophthalmic lenses and mountings are usually done without the knowledge of the patient and without rendering any special service to the patient. These are some of the grounds on which ophthalmologists are indicted not only by the public but also by the medical profession. What is your answer to this indictment? Shady and secret methods of rebating which are by no means uncommon can be kept in the dark no longer.

FUNDAMENTAL PRINCIPLES OF ETHICAL CONDUCT

Let me review a few fundamental principles to which all physicians are obligated in order that a foundation may be laid for the proper answer to this indictment and that all may comprehend the approved standard of ethical conduct.

In the booklet[1] published by the American Medical Association the fundamental principle which should activate the relation between the physician and his patients is stated thus:[2]

> A profession has for its prime object the service it can render to humanity; reward or financial gain should be a subordinate consideration.

The question of proper ethical conduct can always be answered by applying this principle. Does the possibility of financial and selfish gain predominate, or do we consider the interest of the patient as most important? I commend the reading of this entire booklet to all ophthalmologists. It briefly and clearly sets forth the ideals which should dominate the physician's conduct and his obligations to the profession, to the public and to patients. I wish to call attention to only a few of these specific obligations which are set forth in this booklet which should be fulfilled by all ophthalmologists. The first is:[3]

> The obligation assumed on entering the profession requires the physician to comport himself as a gentleman and demands that he use every honorable means to uphold the dignity and honor of his vocation, to exalt its standards and to extend its sphere of usefulness.

Read before the Section on Ophthalmology at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 4, 1941.

1. Principles of Medical Ethics of the American Medical Association, Chicago, American Medical Association, 1940.
2. Principles of Medical Ethics, p. 3.
3. Principles of Medical Ethics, p. 6.

The second obligation [4] is a rule of conduct relating to rebates. It is stated thus:

It is unprofessional to accept rebates on prescriptions or appliances, or perquisites from attendants who aid in the care of patients.

The third obligation, which relates to "profits to lay groups" is stated thus: [5]

It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy.

And finally [6]

the duty of the physician to his patients, to other members of the profession and . . . as well as to . . . the public

is stated thus:

It is incumbent on the physician that under all conditions, his bearing toward patients, the public and fellow practitioners should be characterized by a gentlemanly deportment and that he constantly should behave toward others as he desires them to deal with him. Finally, these principles are primarily for the good of the public, and their enforcement should be conducted in such a manner as shall deserve and receive the endorsement of the community.

Let me call your attention also to the following resolutions, which were adopted by the Section on Ophthalmology of the American Medical Association at the Chicago session in June 1924. These, however, were not presented to the House of Delegates.

Resolved, That it is the sense of the Section on Ophthalmology of the American Medical Association that we deprecate the selling of glasses by the ophthalmologist to his patients, in communities where the services of reliable dispensing opticians are obtainable; and

Resolved, That the acceptance of commissions or considerations, either directly or indirectly, from opticians and optical houses, from the sale of glasses is absolutely contrary to all our standards of medical ethics and is just as reprehensible as the splitting of fees.

These principles of ethics and the resolutions adopted by this section present the obligations which the profession regards as the minimum ethical standards of practice for ophthalmologists. From the information which I have been able to gather I fear that these standards are more "honor'd in the breach than in the observance."

The situation which is peculiar to ophthalmologists consists in the fact that the correction of errors of refraction constitutes a large percentage of his practice —from 60 to 90 per cent; and ophthalmic lenses and their mountings must be supplied and properly fitted to each individual when a correction is prescribed. This requires some form of commercial relationship with those nonmedical men who render this service. Another situation peculiar to the practice of ophthalmology is competition with optometrists in the service of correcting errors of refraction. In many communities the fee of the ophthalmologist for making the ocular examination, including that of refraction, is less than the profit made by one who furnishes the prescribed glasses. Very often too, when the prescription falls into the hands of the optometrist the patient likewise falls into his hands. The degree of cooperation between ophthalmologist and optometrist leaves very much to be desired. The advertising and the activities of the publicity agents of the optometrists place at a disadvantage the ethical ophthalmologist who does not, will not and should not employ these methods to secure favor with a price conscious public, easily influenced by the wiles of the advertiser.

4. Principles of Medical Ethics, p. 8.
5. Principles of Medical Ethics, p. 21.
6. Principles of Medical Ethics, p. 24.

METHODS OF SUPPLYING GLASSES

Let us now analyze the methods, commonly employed, by which glasses are supplied and then point out briefly the ethical principles involved in the use of each method. There are at least six different methods for supplying the correcting glasses, which are as follows:

1. The first method is that in which the ophthalmologist gives the prescription for the lenses directly to the patient, who is instructed to have it filled by any reliable optician of his own choice. Should the patient request the opthalmologist to recommend an optician, such recommendation is usually made. It is customary for the ophthalmologist to make an inspection after the prescription is filled. For the entire service of supplying a prescription and inspection the ophthalmologist receives a single fee and no other remuneration either directly or indirectly. In the use of this method he does not accept any rebate, "kickback" or any part in the profit from the glasses provided.

2. By the second method the ophthalmologist personally furnishes the glasses. He does this either by means of an optician's laboratory, connected with his office, or by having the prescription filled and mounted by a dispensing or jobbing optician, the completed job being delivered to the ophthalmologist, who makes final inspection and adjustment, the ophthalmologist charging and collecting the prevailing retail price of the glasses in addition to his fee for examination. This is a direct and open and ethical transaction between doctor and patient.

3. By the third method the prescrition is filled and the mounting completely fitted by a wholesale dispensing optician, who charges a nominal fee for the extra service of adjustment of mountings and collects the prevailing retail price for the completed work. This leaves a differential in cost between the wholesale price plus service charge and the retail price, and this differential—a profit—is credited to the ophthalmologist issuing the prescription. This method may or may not be known by the patient.

4. By the fourth method the ophthalmologist sends the patient to some chosen optician, who completes the entire work of filling the prescription, mounting, adjusting and collecting the full retail price, returning to the ophthalmologist a specified rebate, which is done without the knowledge of the patient. By some the prescription is not given to the patient but is delivered to the optician so that none may go astray.

5. The fifth method is one in which ophthalmologists have a partial or complete ownership in an optical dispensing store, which at times is designated by the more subtle name of laboratory. By this method the

ophthalmologist has a direct interest in the profits from sales connected with his prescriptions. The financial interest in such stores is generally not known to the patients who patronize such stores on advice of the ophthalmologist.

6. There is a sixth method. There are a few instances in which a physician with little knowledge of ophthalmology contracts for his services on a salary or on a percentage basis to some retail establishment where both the examination and the sales are conducted.

COMMENT

The first method is the ideal, ethical one; its employment is in harmony with the resolution of this section. It removes the possibility of any selfish interest or bias in the transaction of supplying glasses. This is the highest ethical form of practice and is followed by the leading ophthalmologists in the United States.

The ethics of the second method hinges on the question, under certain given circumstances of location or of availability of dependable opticians, whether adequate optician's services can be obtained. That service which has the best interest of the patient in mind is the one which should be employed; in many localities the ophthalmologist must perform the fitting and adjusting services usually rendered by the retail or dispensing optician. There is nothing unethical about this form of practice if all financial transactions are open and understood by the patient. And there can be nothing unethical in charging the established retail price for the quality of the glasses supplied, when the services of fitting, checking and adjusting are performed by the ophthalmologist. He also assumes the responsibility of the financial transactions.

The third method, the one in which the wholesale dispenser furnishes the glasses and makes some nominal charge above the wholesale price, performs the service of adjustment, inspection and collection but credits the ophthalmologist with a differential, is open to criticism, especially when no additional service is rendered for the differential, which is, of course, a rebate. And this practice is particularly reprehensible when it is done secretly.

There can, of course, be no justification whatever for the receiving of a percentage rebate for glasses which are furnished by opticians who provide all the services connected with the supplying of glasses. This practice violates every ethical medical principle of practice. Under these circumstances the patient either receives an inferior quality of product or an inferior optical service.

The outright or partial interest in any retail optical store is an indirect method of receiving rebates, and the best ethical traditions of the profession are violated when ophthalmologists yield to this temptation to make a profit on ophthalmic supplies.

The practice of selling one's services to some lay body is a direct violation of the physician's obligation to the profession, as I have shown in the quotation from the Principles of Medical Ethics. This practice fortunately is seldom followed. No self-respecting ophthalmologist should be guilty of this unethical practice.

It is a fundamental duty of the ophthalmologist to give to his patients an unselfish, unbiased and unhampered service—the best advice which his experience and knowledge dictate. It is very questionable whether such service can be rendered without some degree of prejudice, perhaps unconsciously, by an ophthalmologist who has a financial interest in the commercial side of supplying the equipment. As far as refractive problems are concerned, patients consult the ophthalmologist not primarily to get a pair of lenses but to find out whether or not there is need for them. The answer to that problem should be answered without any bias.

It seems to me that the crux of unethical practices lies primarily in some secret form of rebate, differential or kick-back—to some furtive participation in the profits connected with the supplying of lenses and their mountings, which participation is done without the knowledge of the patient. As a consequence of this method of practice, patients are compelled to pay for services which are not rendered either by the ophthalmologist or by the optician. Evidently this practice does not consider the best interest of the patient.

When an adequate and proper fee is made for the professional services rendered, the ophthalmologist is not ethically entitled to some additional fee from the sale of the glasses. When any rebate method is practiced, by whatever name it is designated, which method requires the optician to split the profits with the ophthalmologist, it is probable either that an inferior quality of ophthalmic goods is supplied or that the optician's service is lacking in high standard. All rebates are a form of fee splitting which cannot be defended on any ethical ground. There can be no justification for trading on the confidence of the patient openly or secretly, but the secret practice is the more reprehensible. These forms of unethical conduct are emphatically condemned by the medical profession, and those who practice them are bringing disrespect, derision and dishonor to the profession.

In an address delivered at a recent meeting of the Medical Society of the County of Monroe in New York State, Dr. Van Etten, President of the American Medical Association, said that organized medicine had always upheld the highest ethical standards and "The parent organization has never sold us down the river because of any form of commercial or legislative pressure." Surely the Section on Ophthalmology of the parent organization will not be the exception to this ethical history. No ophthalmologist should be guilty of participation in the secret distribution of profits in the supplying of glasses, nor should he be guilty of trading on the confidence of his patients. Every ophthalmologist should conduct his practice and his relationship with lay bodies so that he will serve the best interests of the public, the patients and the profession. Only in this way will he help to remove the indictment against ophthalmologists and help to maintain the good repute of our honored profession at its historic ethical standard.

53 South Fitzhugh Street.

Galen Made a Mistake.—Galen in his role as an anatomist insisted that the physician should be a dissector, which was a revolutionary idea. He apparently never dissected the human body. He did dissect many types of mammals, birds, reptiles and fish and prepared the bodies of monkeys for anatomical study. He made the mistake of affirming that all animals, including man, were absolutely identical in their organic parts. Apparently he was struck by similarities rather than differences, a trap in which many modern observers are caught.—Lewis, Nolan D. C.: A Short History of Psychiatric Achievement, New York, W. W. Norton & Co., Inc., 1941.

OCCULT FRACTURES

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AND
DENIS S. O'CONNOR, M.D.
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This paper has been written from the point of view of the practitioner who is forced to depend on inadequate facilities for roentgen ray diagnosis. In many otherwise excellent hospitals the visiting roentgenologist attends the hospital once a week and reads all the films taken during the previous week. During his absence the physician is obliged to depend on the diagnosis of a technician or on his own judgment.

We wish to emphasize the importance of the clinical examination for a suspected fracture in the face of a negative verdict by roentgen ray examination. Both examinations should be employed, but in case of doubt the clinical examination should prevail.

There is need of improved education of roentgen ray technicians, better training of the practitioners in the reading of roentgenograms and more cooperation between the physician and the roentgenologist.

The one surgical condition in which the roentgen ray examination as a diagnostic agent might be considered well nigh infallible is fractures. Yet even at this time of relatively advanced roentgen ray technic there are fractures which may be diagnosed clinically in spite of negative roentgen ray findings. We have chosen to call such fractures "occult fractures."

An occult fracture may be defined as one which gives clinical signs of its presence yet which, with excellent roentgen ray technic, cannot be demonstrated by the roentgen ray examination before reparative changes have taken place.

It is, of course, not uncommon to fail to disclose fractures by the roentgen ray examination because of faulty technic or insufficient posturing, and while some

Fig. 1 (case 1).—Occult fracture of the patella: *A*, shortly after accident; *B*, appearance several weeks later, showing stellate fracture of the patella.

of the cases here reported may fall into that category we would emphasize that the roentgen ray still is not infallible in the diagnosis of fractures.

The roentgen ray examination is essentially a laboratory procedure and should never be permitted to obscure the clinical examination and point of view. It is of inestimable help in the diagnosis and treatment of fractures, but it is not the last word in diagnosis, although in the opinion of the public and the courts and, we regret to say, in the minds of many medical men it is accorded a place in diagnosis much more prominent than is rightfully to be expected.

For many years roentgenologists have recognized that certain fractures of the ribs, skull and spine could not be diagnosed by any technic known at the present time. This list must be enlarged to include other bones, as we shall demonstrate later.

Fig. 2 (case 2).—Periosteal thickening of third metatarsal bone of several weeks duration.

Watson-Jones,[1] referring to fractures of the carpal scaphoid, says:

> Negative x-ray findings do not exclude a recent scaphoid fracture. . . . The clinical diagnosis of a recent fracture of the scaphoid, based on the history, the effusion into the joint and the localized tenderness, is sometimes more accurate than the x-ray diagnosis. Radiographic evidence is by no means infallible. Films of perfect quality taken on the day of injury may show no evidence of the fracture which has been sustained. If the clinical features suggest a probable fracture, but the anteroposterior and oblique radiographs show no evidence of it, the x-ray examination must be repeated two or three weeks later.

Now fractures which cannot be demonstrated by the roentgen ray examination may be considered to be relatively unimportant, which is generally true, but unexplained symptoms are commonly the cause of a great worry to the patient, the source of great expense in the search for an explanation of the pain and the source of great economic loss, especially if the patient is an industrial worker.

The subject has a medicolegal significance, since at least one suit for malpractice has been instigated for the improper treatment of a fracture of the clavicle which was not diagnosed at the first roentgen ray examination.

REPORT OF CASES

Case 1 (fig. 1).—A young woman[2] sustained a contusion of her knee in an automobile collision. Roentgenograms of the knee taken shortly afterward were reported negative for fracture. Because of persistent pain and swelling, new roentgenograms were taken several weeks later, no new injury having occurred, and a definite stellate fracture of the patella was found.

Case 2 (figs. 2 and 3).—A student[2] at Yale University reported at the orthopedic department, complaining of a painful foot of several weeks' duration. He could not remember any injury. The dorsum of the foot in the metatarsal area showed a moderate diffuse swelling. Pressure over the shaft of the third metatarsal bone was painful, and the bone showed definite

Read before the Section on Orthopedic Surgery at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 5, 1941.

1. Watson-Jones, Reginald: Fractures and Other Bone and Joint Injuries, Baltimore, William Wood & Co., 1940, p. 409.
2. A patient of Dr. O'Connor.

thickening at this point. A roentgenogram was taken which revealed enlargement of the third metatarsal bone at the point complained of due to periosteal reaction. No fracture line could be made out. Under mild metatarsal support the symptoms subsided within a few weeks.

CASE 3.—M. L., a middle-aged woman,[2] stumbled and fell on June 14, 1940. She got up and continued on her way. Three months later because of continuation of pain in the foot she consulted a doctor, who hospitalized her for six days but did not make any roentgen ray examination. She continued to favor the foot because weight bearing was painful. She was first seen by one of us on Nov. 2, 1940 for a complaint of pain in the instep of the right foot. Examination revealed tenderness over the distal end of the third metatarsal bone. Roentgenograms of the foot which had been made before consulting us and which had been reported to be negative for bone injury were studied. Careful examination revealed a small area of localized periosteal proliferation on the dorsum of the distal end of the third metatarsal bone. Under a mild support applied to the metatarsal arch the symptoms were relieved.

CASE 4 (figs. 4 and 5).—A. A. B., a woman[3] aged 70, in January 1928 was in an automobile accident and was thrown to the right side of the car with her head and neck twisted backward. She was rendered unconscious. On regaining consciousness she complained of pain over the right clavicle. She was taken to a capable surgeon, and roentgenograms by an excellent roentgenologist in two planes[4] revealed no fracture. The arm was partially immobilized. Three weeks after the accident she felt sudden pain and crepitus just lateral to the middle of the clavicle with pain down the arm to the elbow. She requested another roentgen ray examination, which showed a fracture at the point mentioned with upward displacement and firm callus formation. There was pain on any movement of the right shoulder. She was seen by one of us thirteen weeks after the accident, and the deformity described was observed. Union was firm with considerable callus present. Shoulder motions were painful but not limited. Operative reduction was advised but declined. She was fitted with shoulder straps with some relief of pain. She died two years ago with the deformity still present.

CASE 5.—H. S., a woman[3] aged 35, on Sept. 7, 1931 was thrown against the side of an automobile and injured the region of the left clavicle. She was taken to a hospital, where a roentgen ray examination revealed no injury to the clavicle. The shoulder was strapped and a sling applied. One week later she consulted one of us complaining of a tender, bony

Fig. 3 (case 2).—Lateral view of foot.

prominence over the middle of the left clavicle. A roentgenogram revealed an oblique fracture of the clavicle at this point with elevation of the outer fragment. Shoulder straps and a sling were applied, and she was discharged on October 30 with no deformity, solid union of fragments, and free shoulder motions.

CASE 6.[5]—J. H., a boy aged 11, seen in the practice of Dr. Herbert E. Harris of Providence, who has allowed us to report this case, fell from a tree on July 27, 1937 and injured his right shoulder region. He was given emergency treatment for a fractured clavicle and taken to a hospital, where a roentgen ray examination showed no fracture. He was referred to Dr. Harris, who made another roentgen ray examination and again no fracture was seen. Nevertheless the arm was placed in a Velpeau bandage and the elbow lifted. On September 3 he

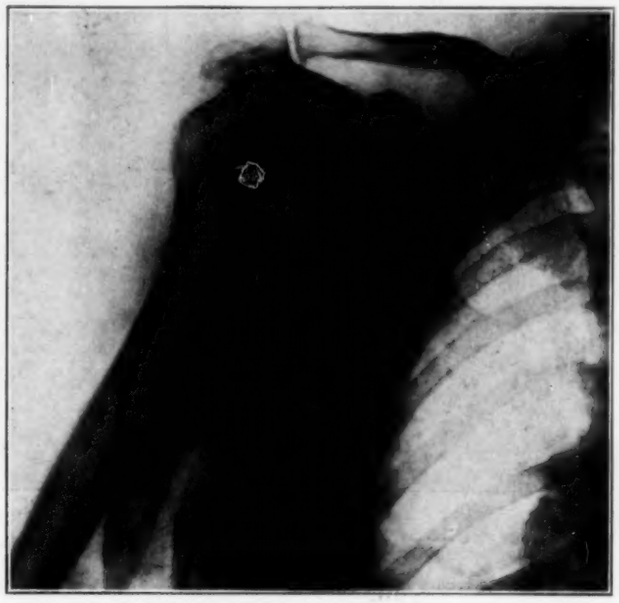

Fig. 4 (case 4).—Occult fracture of right clavicle as it appeared on day of injury.

was examined by one of us (R. H.) in the absence of Dr. Harris. There was a forward projection at the middle and inner thirds of the right clavicle. Firm union was present with considerable bony thickening. The right clavicle measured ¼ inch shorter than the left. The distal fragment was slightly overriding and projected under the skin as a sharp point. Roentgen ray examination showed a longitudinal fracture with some overriding and a transverse fracture as well at the middle and outer thirds of the clavicle. The patient was seen by Dr. Harris on September 17 and the same condition was present. The sharp spicule under the skin caused no redness or discomfort.

CASE 7 (figs. 6 and 7).—M. O'B.,[3] seen Aug. 20, 1927, fell while running and injured her left wrist. The wrist showed considerable swelling about the radial styloid, but no silver fork deformity was present. No fracture could be made out by roentgen ray examination. Manipulation of the wrist under anesthesia was advised, in spite of the negative roentgen ray findings. During this procedure considerable crepitus was felt and the swelling disappeared. Postreduction roentgen ray examination revealed a Colles fracture with the fragments in perfect apposition. Convalescence was uneventful and she was discharged October 4 with complete function, and roentgen ray examination showed accurate position and firm union.

We have discovered 6 cases showing fractures of the clavicle without displacement. These occur at the point where the shadow of the clavicle and that of the first rib intersect, which renders interpretation of the roentgenogram difficult. These cases are not reported in detail.

The following cases are reported for purpose of record, although we regret that they cannot be verified, since it is impossible to locate the roentgenograms:

CASE 8.—A young Italian girl[2] came to the orthopedic clinic of the New Haven Hospital complaining of pain in the metatarsal region of the foot, especially on weight bearing. She

3. A patient of Dr. Hammond.
4. Phillips, Herman B.: A Lateral View of the Clavicle, J. Bone & Joint Surg. **17**: 202 (Jan.) 1935.
5. Reported by Dr. Hammond.

could not recall any injury. Examination of the foot showed a definite but diffuse swelling on the dorsum of the foot. Tenderness was maximum over the shaft of the third metatarsal bone. Pressure beneath the head of the third metatarsal bone was

Fig. 5 (case 4).—Fracture of right clavicle as it appeared thirteen weeks after the accident.

productive of pain. Extreme passive dorsiflexion or plantar flexion of the third toe was painful. A clinical diagnosis of fracture of the third metatarsal bone was made and a roentgenogram was ordered. The roentgenogram was reported to be

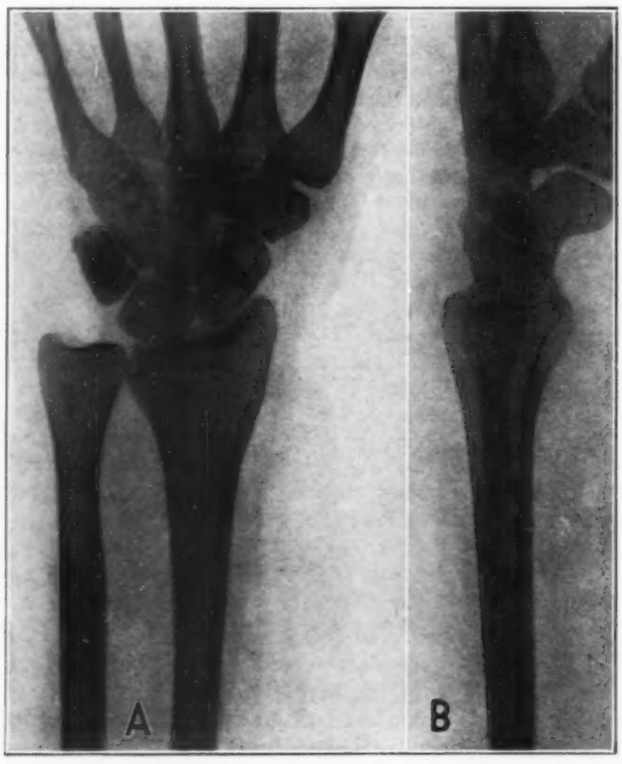

Fig. 6. (case 7).—Occult Colles fracture of left wrist: *a*, anteroposterior view; *B*, lateral view.

negative for fracture, and a study of the films failed to reveal any fracture. Several weeks later another roentgenogram was taken which clearly revealed a fusiform periosteal reaction about the shaft of the third metatarsal bone. On the basis of the periosteal reaction the roentgenologist concurred in a diagnosis of a fracture of the third metatarsal bone. The patient went on to complete relief of the symptoms for which she came to the clinic. Unfortunately the films of this case are not available.

CASE 9.—A middle aged woman [2] while walking experienced a sudden sharp pain in her foot. Continuation of the pain for several days forced her to seek medical care. A diagnosis of a fracture of the shaft of the third metatarsal bone was made from the localized tenderness. With special attention to the technic of bringing out bone detail a fine fracture line was found in the shaft of the third metatarsal bone.

CASE 10.—A young woman,[2] dietitian in the New Haven Hospital, twisted her ankle while walking but continued her activities and did not seek immediate medical aid. Several weeks later because of continued pain and slight swelling about the lateral malleolus of the ankle she consulted an orthopedic surgeon, who requested roentgenograms. These showed a mild

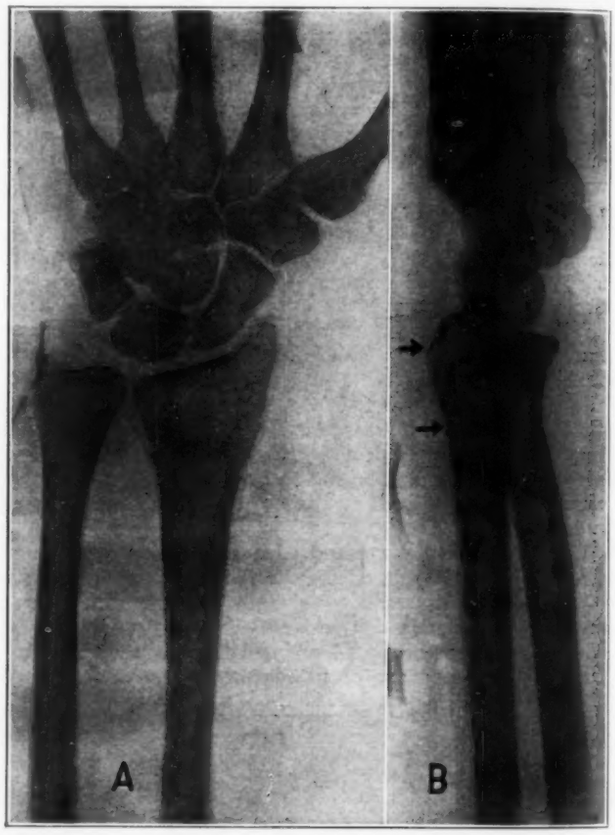

Fig. 7 (case 7).—Appearance after reduction: *A*, anteroposterior view; *B*, lateral view.

periosteal proliferation about the distal end of the fibula but no fracture line. The possibility of an early malignant growth was strongly considered but the condition went on to complete subsidence of symptoms within a few weeks. The roentgenograms of this case could not be located at this time.

CASE 11.—D. R. B.,[3] seen Aug. 6, 1938 with a history that he stubbed his fourth right toe against a bedpost, noticed pain and swelling at the base of the second, third and fourth toes and pain limited to the fourth toe. Roentgen ray examination showed a transverse fracture of the midshaft of the proximal phalanx of the fourth toe but no fracture elsewhere in the foot. He was treated for a fracture of the fourth toe and disappeared from observation after two months of treatment and did not return until October 28. At this time he complained of pain over the second metatarsal bone, where there was considerable thickening and tenderness. Roentgen ray examination showed evidence of a fracture behind the head of the second metatarsal, with marked callus formation. The fracture line in the proximal phalanx of the fourth right toe had disappeared with firm healing.

CASE 12.—A young man[2] was referred to one of us by his physician because of a persistent pain in the shoulder, which had been present since an automobile collision in which he was involved. Roentgenograms had been taken and reported to be negative for fracture. New roentgenograms were taken which revealed a longitudinal split in the distal third of the clavicle. Under rest and protection for the shoulder the condition cleared up after several weeks.

It might be argued that convincing evidence of roentgen ray failure has not been shown in some of the cases presented, and our failure to present immediate roentgenograms showing no fracture and later roentgenograms showing the periosteal reaction or repair in other cases does not permit disinterested observers to check our report, rendering many of the cases which we have presented as worthless in proving our contention; however, we are convinced that even the small number of acceptable cases of occult fractures presented here does warrant the recognition of occult fracture as a clinical entity.

The location of the occult fractures presented is such that no technical difficulties to the optimum demonstration of a pathologic condition of bone are present, except in the case of fractures of the clavicle.

It is obvious that in those regions of the body in which demonstration of a pathologic condition of bone by roentgen ray examination is difficult because of the distortion of the parts and the irregularity and overlapping of other bones or parts of bones, occult fractures could occur with little if any chance of detection.

One has but to refer to the comparison between the clinical roentgen ray finding in fatal traumatic cases and the findings at the postmortem examination to convince oneself that, if fractures which are not occult cannot be demonstrated, occult fractures certainly may be present and missed in large numbers.

The conception of the occult fracture is offered in the belief that it will prove to be a useful explanation of otherwise unexplained symptoms.

CONCLUSION

In dealing with fractures we should be clinicians first. We should welcome any help that roentgen ray examination can give us but should never allow it to befog our judgment when the clinical findings are at variance with the interpretation of the roentgenogram.

More emphasis should be placed on the clinical examination of a suspected fracture, and the result of this examination should be checked by a study of the roentgenograms.

In case of doubt the injury should be treated as a fracture. The condition should be explained to the patient, and the reason for such treatment made clear. If such a procedure is carried out, I believe most causes for criticism will be removed.

Furthermore, the fracture surgeon should be able to interpret the roentgenograms himself or in collaboration with the roentgenologist. It is only by association of the clinical and roentgen ray findings that a proper interpretation of the injury can be attained.

In a letter to the *Lancet* in 1908 Sir Robert Jones[6] said:

> While Roentgen's discovery has been to us of immense value, chiefly in the classification of our injuries, it has done little if anything to perfect or even alter our treatment of fractures. It is a valuable adjunct to our clinical armamentarium, but it should not be allowed to usurp our other diagnostic faculties. It is deplorable to think of the education of the student today, who rarely troubles to make himself ordinarily efficient in the diagnosis of a fracture but meekly awaits the revelation of an often misleading roentgen ray photograph.

What was true in 1908 is true in 1941.

219 Waterman Street, Providence, R. I.—158 Whitney Avenue, New Haven, Conn.

6. Jones, Sir Robert: Letter to Editor, Lancet, March 21, 1908, I, p. 888.

ABSTRACT OF DISCUSSION

DR. WALTER C. HILL, Cleveland: By the authors' definition "an occult fracture is one which the roentgenologist fails to find." Over a period of years I have tried to perfect my technic so that these failures are brought to the minimum. These principles are: 1. A roentgen ray tube of the finest focal spot obtainable. 2. Nonscreen film technic whenever possible, or fine detail intensifying screens where screens are required. 3. Proper density of roentgenograms; for example, films made of the hands and feet should be sufficiently dark to require study by the spotlight and should be studied with a magnifying glass. 4. Immobilization of the patient, achieved by judicious use of sandbags and restraining bands. 5. Extra views in all cases in which experience has indicated that fractures are commonly overlooked; for example, special carpal views for scaphoid (navicular) fractures. Special elbow views for the radial head or olecranon; extra angle views of the ankle for fractures about the malleoli; extra vertical and angle views of the shoulder for clavicle study. Routine stereoscopic views of the skull, shoulders, spine, pelvis and hips. 6. Careful clinical examination by the roentgenologist before the patient is dismissed as negative to make sure that all possible variations and positioning in technic have been employed for the case being examined. Recently I reviewed 10,485 wrist examinations in my private practice. There were 2,494 Colles fractures, 534 recent scaphoid fractures and 93 old ununited scaphoid fractures. As an example of the value of cooperation between the clinician and the roentgenologist, in one of my offices where I work in close collaboration with several industrial surgeons I find 1 scaphoid to 3 Colles fractures, while in the other office, where most of the patients are referred by general practitioners, I find only 1 scaphoid to 7 Colles fractures. This indicates clearly that clinicians can be trained to become scaphoid conscious and not overlook these important injuries. One may agree in part with Drs. Hammond and O'Connor that in certain cases the clinical evidence should take precedence over negative roentgen ray findings, most certainly if the roentgen examination is done in a routine or perfunctory manner without the collaboration of an experienced roentgenologist. But Sir Robert Jones and the authors to the contrary, I cannot agree that the value of the roentgen ray in the diagnosis and treatment of fractures has not altered since 1908.

DR. CHARLES N. PEASE, Chicago: The so-called occult fractures are extremely rare. I feel that more of these fractures are not demonstrated in the roentgenogram because a sufficient number of views are not taken. This does not hold true with roentgenologists like Dr. Hill, but for the most part it does. For suspected fracture of the carpal scaphoid, for example, at least films of six different positions of the wrist should be made. Fractures of the other bones are sometimes difficult to visualize, such as the tarsus, metatarsus and clavicle, head of the radius, vertebra and scapula. We are all familiar with these and are agreed that universally improved roentgen technic will go a long way in demonstrating these fractures. Before the days of improved roentgen technic, fractures of the body of the vertebra with little or no displacement were not recognized and collapsed on weight bearing. These fractures, as you know, were called "posttraumatic collapse of Kümmel." It is true that if one takes several views of the ankle showing a trauma there may be no roentgen ray evidence of fracture, but after six weeks the cortex of the lower end of the fibula may show some new bone formation. This may be due to unrecognized fracture or periosteal elevation. If there was a great amount of pain and swelling, immobilization, of course, would be employed whether or not a fraction line was demonstrated. To prove the existence of these occult fractures, postmortem examination or animal experimentation will remove all doubt as to their existence.

DR. ROLAND HAMMOND, Providence, R. I.: I agree with everything that has been said. My object in the paper is educational. Picture the condition of the average general practitioner in a small community with a good local hospital—the technician, who has been trained by some other technician, and the visiting roentgenologist, who appears once a week. The fracture occurs the day after this roentgenologist has visited. The doctor accepts the diagnosis of the technician, and before the roentgenologist gets around the next week the harm has been done; therefore, it seems to me, a campaign should be instituted for help to the practitioner. Those of us who are interested in fracture work know that more than two views of an ankle are necessary. We know that a lateral view of the clavicle should be taken, but nevertheless there are other fractures. You must all have had the experience at autopsy in a traumatic case of having the pathologist tell you "Well, he had a fracture of so-and-so, but then you couldn't have seen it anyway." More should be done to make it easier for the man who has access to inadequate roentgen ray facilities.

THE ELECTROLYTE THERAPY OF PREMENSTRUAL DISTRESS

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AND
S. C. FREED, M.D.
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Premenstrual tension is the term which Frank has designated for a not uncommon syndrome which occurs in the premenstrual phase and disappears with the onset of menstruation. It usually consists of several of the following symptoms and signs: headache, emotional instability, irritability, abdominal distention, nausea and vomiting, increased sex desire, pruritus and swelling of the vulva. Many women, however, suffer from moderate degrees of such disturbances but these are usually accepted without question as a normal feature of the menstrual cycle. For the sake of convenience we have termed the latter condition "premenstrual distress." It is our belief that both premenstrual distress and premenstrual tension have a common etiology, the difference between the two being a quantitative one. We have postulated that both are the result of changes in the electrolyte and water balance of the various tissues of the body which are probably the result of cyclic ovarian activity. Thus, under the influence of certain ovarian steroids, sodium is retained by the tissues with a subsequent increase in extracellular fluid. When this occurs to a significant degree in the brain, headaches develop; when the gastrointestinal tract is involved, distention occurs, and, when the edema is located in the skin of the labia, pruritus may appear. With the subsidence in activity of the ovary coincidental with menstruation, the various tissues lose their retained sodium and water and the respective symptoms disappear.

On the basis of our theory we [1] administered ammonium chloride for therapeutic purposes in order to prevent the retention of sodium in the tissues. Following this therapy for 15 patients suffering from premenstrual distress or tension we observed almost uniform relief of symptoms. We have considered these results as evidence in support of the hypothesis that premenstrual distress or tension is due primarily to sodium retention. In the present paper we are reporting the results of the treatment of 40 patients suffering from premenstrual distress or tension with ammonium chloride.

METHODS AND RESULTS

The disturbances which appeared most frequently in our cases of premenstrual distress were headaches, nervous irritability, abdominal distention and nausea. Less commonly some women experienced increased sex desire, edema of the vulva and a feeling that the skin was tight. Four patients were considered to have premenstrual tension because of the intensity of the symptoms. These patients presented marked emotional instability with behavior changes consisting of depression, excitation, "temper tantrums" or "crying spells." Four patients demonstrated subcutaneous edema, excluding those with vulvar edema. One patient, a physician's wife, gained 7 to 8 pounds before each menstrual period, which was lost after the flow.

Ammonium chloride was administered in doses of 3 Gm. daily, divided in three doses, starting ten to twelve days before the expected menstrual period. In order to limit the sodium intake somewhat, patients were asked to refrain from using table salt or sodium bicarbonate preparations.

Thirty-four of the 40 patients had definite relief from the usual premenstrual disturbances. These patients stated that they had an increased sense of well-being at this time in addition to freedom from distress. It was interesting to observe that many of the patients on ammonium chloride therapy were unaware of an impending menstrual period, which they could formerly predict a number of days in advance. The relief of symptoms was most gratifying for those patients suffering from the severe forms of premenstrual distress. Here the results were quite dramatic. Those patients who usually suffered from abdominal distention or visible edema failed to do so after therapy. Relief from all types of disturbances was obtained in subsequent cycles, provided the electrolyte therapy was continued. The administration of ammonium chloride was of little use in alleviating migraine unrelated to the menstrual cycle, dysmenorrhea or painful breasts.

COMMENT

It is well known that women frequently gain weight in the premenstrual phase and lose a corresponding amount during and following the menses. This fluctuation in weight is acknowledged to be the result of cyclic retention and loss of water. Thorn and his associates [2] have demonstrated that the retention of water during the premenstrual phase in normal women and those exhibiting premenstrual edema can be accounted for by sodium retention. There is considerable evidence that this response is induced by ovarian steroids. Thorn and Emerson [3] have concluded that "premenstrual edema is probably the result of normal cyclic changes in sex hormone secretion acting on a precipitating factor in patients with some underlying change which predisposes to excessive retention of sodium chloride and water." These investigators have shown that a low sodium intake and the administration of potassium citrate prevents this retention of fluid.

In our opinion premenstrual edema is only one phase of the generalized sodium retention in the body and, because it is an involvement of the subcutaneous tis-

Read before the Section on Obstetrics and Gynecology at the Ninety-Second Annual Session of the American Medical Association, Cleveland, June 6, 1941.

1. Greenhill, J. P., and Freed, S. C.: The Mechanism and Treatment of Premenstrual Distress with Ammonium Chloride, Endocrinology **26**: 524 (March) 1940.

2. Thorn, G. W.; Nelson, K. R., and Thorn, D. W.: A Study of the Mechanism of Edema Associated with Menstruation, Endocrinology **22**: 155 (Feb.) 1938. Thorn and Emerson.[3]

3. Thorn, G. W., and Emerson, Kendall, Jr., Role of Gonadal and Adrenal Cortical Hormones in the Production of Edema, Ann. Int. Med. **14**: 757 (Nov.) 1940.

sues, it is a visible phenomenon. We contend that internal organs of the body may undergo a similar change and the increase in water content manifest itself by the development of the various symptoms of premenstrual distress or tension. Ammonium chloride relieves the symptoms of premenstrual distress or tension by removing the extracellular fluid or "hidden edema" of such tissues in the same manner as it prevents the formation of premenstrual edema.

Several methods have been recommended for preventing or overcoming premenstrual tension. Frank,[4] who first reported the treatment of this condition, obtained satisfactory results with the use of magnesium sulfate by mouth. According to this investigator, premenstrual tension is due to an increase in blood estrogens, and his purpose in using magnesium sulfate was to increase the elimination of the estrogens by the intestine. Such results as he obtained might, however, be satisfactorily explained by the dehydrating effect of magnesium sulfate. Israel[5] has reported excellent results in cases of premenstrual tension by administering progesterone hypodermically during the premenstrual phase. Similar results have been claimed by Greenblatt[6] for the use of testosterone propionate. From the results obtained by the latter two investigators it would appear that the ovarian steroids responsible for the development of premenstrual symptoms would be of the estrogenic type, since both testosterone and progesterone are capable of antagonizing many effects of estrogens. Israel observed an intensification of the symptoms of premenstrual distress following the administration of estrogens. Nevertheless, Atkinson and Ivy[7] have reported successful prevention of premenstrual edema with an extract of the placenta whose active ingredient was estriol glucuronide. However, these investigators were unable to obtain similar effects with estriol itself. Thorn and Emerson suggest the possibility that progesterone or progesterone plus estrogens are the steroids responsible for premenstrual edema. Although further evidence is required before conclusions are justified as to the specific steroids giving rise to these conditions, it appears most likely that the responsible steroids are elaborated by the corpus luteum.

Ammonium chloride is not specific in the electrolyte therapy of premenstrual distress or tension. Other salts which can displace or withdraw sodium may be equally effective. Investigations are now being carried out by us to determine the efficacy of several such salts for their ability to relieve these conditions.

SUMMARY

We have found that ammonium chloride therapy is effective in relieving patients suffering from premenstrual distress or tension, the chief symptoms of which are headache, emotional instability, irritability, abdominal distention, nausea, vomiting, pruritus and swelling of the vulva. The hypothesis that this syndrome is the result of water retention in the tissues which gives rise to the specific symptoms is supported by the results of our treatment of 40 women and by evidence presented by other investigators.

55 East Washington Street.

4. Frank, R. T.: The Hormonal Causes of Premenstrual Tension, Arch. Neurol. & Psychiat. **26**: 1053 (Nov.) 1931.
5. Israel, S. L.: Premenstrual Tension, J. A. M. A. **110**: 1721 (May 21) 1938.
6. Greenblatt, R. B.: Syndrome of Major Menstrual Molimina with Hypermenorrhea Alleviated by Testosterone Propionate, J. A. M. A. **115**: 120 (July 13) 1940.
7. Atkinson, A. J., and Ivy, A. C.: Menstrual Edema: A Report of a Case Controlled by Emmenin But Not by Theelol or Theelin, J. A. M. A. **106**: 515 (Feb. 15) 1936.

ABSTRACT OF DISCUSSION

DR. JACOB KOTZ, Washington, D. C.: Premenstrual symptoms of depression, headache and gain in weight offer a problem which seriously handicaps the patient economically and socially. Since Dr. Greenhill's preliminary report, I have used ammonium chloride in several cases of severe premenstrual tension, headache, nausea and vomiting. The results have been gratifying and often spectacular. I have noted in the treatment of obesity that almost invariably there is a failure to lose weight and often quite a gain during the week premenstrually, even though the usual therapy was continued. A consistent loss of weight was attained by premenstrual administration of ammonium chloride. The sex sterols are involved in the salt and water metabolism, the disturbance of which leads to retention of water by the tissues. I question, however, whether estrogen is the sole factor. This is prompted by the fact that the bleeding induced in postmenopausal women by estrogen therapy is not preceded by tension or distress. The same is true for the few cases of anovulatory menstruation in younger women. It would seem, therefore, that the disturbance is in the estrogen-progesterone metabolism and that the presence of progesterone is necessary for the production of this phenomenon.

DR. KARL JOHN KARNAKY, Houston, Texas: The Menstrual Disorder Clinic, Jefferson Davis Hospital, Houston, Texas, has used ammonium chloride in 42 cases with uniformly successful results. Detailed chemical analyses of the blood are being studied in these cases. I have discovered a simple and efficient way to relieve premenstrual pelvic distress, dysmenorrhea and pelvic pains by the injection of 2 to 10 cc. of procaine borate or procaine hydrochloride into the anterior lip of the cervix, using a 10 cc. syringe and a spinal needle. Procaine borate, which has a p_H of 8.5, is preferred to procaine hydrochloride, which has a p_H of 3.5. By the injection of procaine, the pains in the pelvis are relieved immediately and in many cases are relieved throughout the menstrual flow. Eighty endometrial biopsies were obtained from 36 normal menstruating women and 6 women with functional uterine bleeding taking ammonium chloride. The 36 normal menstruating women all had a premenstrual endometrium, so ammonium chloride does not affect ovulation. The endometrium did not change in the cases of functional bleeding. In the 6 cases of functional bleeding there was less bleeding while ammonium chloride was being taken; so this may be another use for ammonium chloride. This will be studied further. Why does ammonium chloride work? Based on a new theory as to the cause of menstruation and labor, I am of the impression that it is due not only to the fact that edema is relieved but that, by reducing the sodium ion in the blood, one also increases the amount of potassium, magnesium and phosphorus ions, and especially the potassium. Potassium has much to do with functional activity of both the voluntary and the involuntary nervous system. Also the loss of sodium ions causes a less alkaline p_H, with resulting freeing of the un-ionizable calcium ions. The increase in potassium ions apparently helps to conduct a normal impulse from the uterus to the brain through the autonomic nervous system. The administration of ammonium chloride by mouth favors a more ionizable calcium and favors shifting the p_H of the blood toward the acid side. This shift in p_H toward the acid side may cause the ratio of potassium to calcium to be normal, so more regular and synchronous uterine contractions; also the shift of the p_H toward the acid side may cause the disappearance of the ill feeling that sometimes occurs premenstrually; or a slight alkalosis may be the entire cause of ill feeling at the menses. The ill feeling of menstruation has been produced experimentally by introducing alkalis into the anterior lip of the cervix.

DR. ESTHER B. TIETZ, Cincinnati: Since Dr. Greenhill's first paper I have been interested to find whether ammonium chloride would help in the handling of psychotic patients. Many patients having manic-depressive psychoses and those with schizophrenic syndromes have outbursts of aggressive phenomena during the premenstrual and menstrual periods. This close relation between psychic activity and the ovarian cycle has recently been demonstrated by Dr. Benedek by accompanying the psychoanalysis of a patient with vaginal smears. We have found in some psychotic cases that there are autonomic disturbances directly related to the level of estrogenic content. It

would seem, therefore, that Dr. Greenhill's treatment might have some effect on autonomic activity. We have applied his treatment in cases in which postencephalitic crises were associated with the menstrual period and have been gratified at remissions in cases previously treated unsuccessfully by all known means. The patients themselves are enthusiastic because we have been able to send some home after prolonged hospitalization. Further testing and study will be necessary to learn what the action of ammonium chloride might be on psychomotor activity.

Dr. J. P. Greenhill, Chicago: Dr. Kotz emphasized a good point, namely that estrogen alone is probably not entirely responsible for the action of ammonium chloride, because the premenstrual tension does not occur at the height of follicular development. The change in water and electrolyte balance is probably due to the action of the steroids in the corpus luteum. Since it is highly likely that progesterone is not the responsible agent, the estrogens or the estrogens plus some other steroid of the corpus luteum may be involved. It was interesting to hear Dr. Tietz's remarks about the use of ammonium chloride for premenstrual and menstrual outbreaks in psychotic patients.

RAPID WEIGHT REDUCTION: LOSS OF THREE HUNDRED POUNDS IN EIGHTEEN MONTHS

REPORT OF A CASE

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NEW YORK

Questions which frequently present themselves to the practitioner confronted with the problem of reducing an overweight patient are: Can the weight be successfully reduced? If so, to what degree and how rapidly with safety? Despite repeated reports to the contrary, the impression lingers in the minds of many physicians that certain types of obesity are irreducible or so resistant to attempts at reduction that only a small amount of the excess weight can be removed.

NUTRITIONAL PRINCIPLES

There is probably no type of obesity, regardless of its cause, which will not respond by loss of weight to a submaintenance diet. Such a diet is one with a caloric value less than the daily expenditure by the subject. If a deficit can be thus successfully maintained, the body is compelled to draw on its own stores of fat for heat and energy. The problem, therefore, is to maintain a continued caloric deficit over a sufficient period to accomplish the desired result. Since metabolic adjustments are constantly being made in response to changing conditions, it is sometimes a bit difficult, though possible, to maintain such a deficit and at the same time to meet all the essential nutritional requirements.

There is no theoretical or practical reason for believing that not every bit of excess weight can be removed. This conception seems somewhat staggering when one considers the tremendous weights sometimes encountered. Nevertheless, the truth of this statement has been clearly demonstrated on numerous occasions. Therapeutic reduction of 239 pounds (118.4 Kg.) by medical means previously has been reported.[1] The patient has continued in excellent health and has maintained her weight at or near a normal level. Nor was her case unique, since the literature tells of other cases in which even larger amounts have been successfully removed.[2]

The question as to the rate at which weight reduction may be accomplished with safety is one on which there could be a wide diversity of opinion. Evans and Strang[3] of Pittsburgh broke with more or less established medical tradition when they announced a plan successfully employed for rapid weight reduction. I have employed a similar regimen for a number of years with extremely gratifying results. Although it has not been found feasible or necessary to employ the extremely low diets of 300 to 400 calories mentioned by Evans and Strang, nevertheless a fairly rapid rate of reduction in weight has been found to hold out a much better prospect of success than the slow methods formerly employed. Morale, an intangible though important factor, is much better among patients who can perceive definite, consistent, weekly results. Theoretically, there seems to be no objection to the rapid oxidation of fat, provided essential dietary requirements are adequately met. Protein in an amount sufficient to replace daily that lost by metabolic processes is an absolute essential. To this end 1 to 1.5 Gm. per kilogram of ideal (not actual) weight should be provided. Approximately an equal amount of carbohydrate should likewise be given, although this should be varied according to the degree of adiposity at any one time. Strang, McClugage and Evans[4] stated that 0.6 Gm. per kilogram of body weight is the minimal amount which can be employed to protect essential protein tissues of the body. However, if at all times one attempts to employ only the minimal requirement for purposes of protecting body protein, there will occasionally result in very obese patients an acidosis of the ketogenic type, since an amount sufficient to protect the proteins may in certain cases be inadequate to insure complete oxidation of the fats. As the daily caloric expenditure varies according to the degree of obesity, the huge breakdown of fat necessary to supply the required heat and energy may be so overwhelming as to produce acute ketosis if too little antiketogenic food is provided. I have seen this take place in a number of cases in which the overenthusiastic patient has taken less food than the diet provided. Fortunately, the occurrence of acidosis of this type is quickly corrected merely by the giving of sugar and other carbohydrates. If vomiting has ensued, as occasionally happens, the parenteral administration of dextrose may be required.

The reducing diet should contain a minimum of fat. Since the body has an excess of reserve fat readily utilizable, there is no point whatever to adding more fats to the therapeutic diet. Twenty Gm. of fat daily is about the minimum which I have been able to employ while meeting other requirements.

An adequate supply of vitamins is an important consideration in any reducing diet. Diets which I have frequently employed range from approximately 600 to 900 calories. Although it might be expected that the amount of A vitamin would be inadequate in a diet so low in fat content, the daily requirement is probably largely met through the use of green and other vegetables which contain its precursor, carotene. Since the diets employed contain citrus and other fruits, the danger of a C vitamin deficit is also avoided. The outstanding possibility of inadequacy is found in the B complex. A careful survey of reducing diets employed

1. Short, J. J.: Extreme Obesity Followed by Therapeutic Reduction of Two Hundred and Thirty-Nine Pounds, J. A. M. A. **111**: 2196 (Dec. 10) 1938.

2. Newburgh, L. H.: The Importance of Actually Measuring the Total Heat Production, Arch. Int. Med. **8**: 459 (Oct.) 1934.

3. Evans, F. A., and Strang, J. M.: A Departure from the Usual Methods in Treating Obesity, Am. J. M. Sc. **177**: 339 (March) 1929.

4. Strang, J. M.; McClugage, H. B., and Evans, F. A.: The Nitrogen Balance During Dietary Correction of Obesity, Am. J. M. Sc. **181**: 336 (March) 1931.

in the Post-Graduate Nutrition Clinic and in private practice has indicated that the daily amount is definitely less than optimal. It is possible that the requirement with reducing diets is less than the average, since the amount of B_1 (thiamine) required is somewhat in proportion to the consumption of carbohydrates. Nevertheless, to insure against a possible deficit of this substance it has been my practice to add the B complex in concentrated form. No definite symptoms have resulted, however, in hundreds of patients who have been treated in the clinic with similar diets without the addition of the B complex. The amount of vitamin D in the diets employed is considered adequate.

Reducing diets can well contain considerable amounts of skimmed milk and cottage cheese, which are good sources of calcium. There is no need for the restriction of salt unless fluid is retained. Other minerals are largely provided by an abundance of vegetables of low carbohydrate content, as usually allowed.

Fluids need not be restricted unless there is a tendency to fluid retention. A routine restriction of fluids as practiced by many physicians is an unnecessary hardship if they provide no calories and the patient is in fluid equilibrium.

Metabolic stimulants have been previously discussed.[5] The total basal heat production (i. e., the total caloric output on resting) increases directly with increasing weight. The extra heat required is produced by the vital tissues of the body, principally by the muscles. In very obese persons the caloric output per hour is prodigious. It is easy to approximate the calories of the daily maintenance diet consumed by such persons by multiplying the number of calories per hour, obtained when doing the basal metabolism test, by 24. This represents the basal (or resting) twenty-four hour caloric requirement. The addition of 25 per cent of this value for usual activity and specific dynamic action of food (a conservative estimate) will give approximately the number of calories required daily for maintenance. Practically, this determination is of great value for confronting persons who fail to lose weight on a prescribed submaintenance diet. When patients are shown scientifically that they are consuming food far in excess of the diet, confessions usually follow.

The case to be described is somewhat unusual because of the huge initial weight of 479 pounds (217.2 Kg.), wholehearted cooperation given for twenty months and the amount and rapidity of weight reduction.

5. Short, J. J., and Johnson, H. J.: The Increased Metabolism of Obesity: Use and Abuse of Metabolic Stimulants, J. A. M. A. **106**: 1776 (May 23) 1936. Short.[1]

REPORT OF CASE

History.—O. A., a woman aged 35, first seen on Dec. 30, 1938, complained of extreme obesity which dated from early childhood and a severe cough of five to six months' duration. She recalled that at the age of 14 she had weighed 200 pounds (90.7 Kg.); at 21, 260 pounds (117.9 Kg.), and at 31, 375 pounds (170.1 Kg.). She believed the reason for her overweight was simply the consumption of too much food.

Her father, who was 6 feet 1 inch (185.4 cm.) tall, had weighed 190 pounds (86.2 Kg.) and died of heart disease at the age of 51. Her mother, who was 5 feet 7 inches (170.8 cm.) tall, had reached a maximum of 220 pounds (99.8 Kg.) and died of disease of the gallbladder at 51. One living brother, 6 feet 1 inch (185.4 cm.) tall, weighed 200 pounds (90.7 Kg.). One living sister was extremely thin at 123 pounds (55.8 Kg.), and another sister was obese at 250 pounds (113.4 Kg.). There was no history of diabetes, but the father was thought to have had hypertension.

Fig. 1.—Patient at 479½ pounds (217.4 Kg.).

Fig. 2.—Patient at 250 pounds (113.4 Kg.).

Fig. 3.—Patient at 175 pounds (79.4 Kg.), after operation.

The patient performed no active physical exercise but was ambulatory. She had occasional edema of the lower extremities after standing but no varicose veins or symptoms referable to the arches. The joints were not painful. Headaches were frequent, and she had been told that her blood pressure was elevated. There were no digestive symptoms. The skin of the lower extremities had occasionally become ulcerated.

A marriage of fourteen years had resulted in one pregnancy followed by a spontaneous miscarriage thought to have been due to the strain of lifting. Her elimination was satisfactory and was occasionally aided by the use of magnesium sulfate. She ate sparingly of meat, eggs and fish and consumed no vegetables or cereals and little fruit. She drank four to five cups of coffee and one glass of milk daily but made up her huge intake of food by eating large amounts of cake and other baked foods. Although her regular meals were of moderate size, she ate at frequent intervals throughout the day. She used no tobacco, alcohol or drugs. She had had nocturia, urinating four or five times, and the menses, established at the age of 16, had always been irregular, with occasional

absences of several months. She slept poorly because of her persistent cough and frequency of urination.

Her history was essentially negative for acute disease. There had been no operations.

Physical Examination.—On physical examination the patient weighed 479½ pounds (217.4 Kg.), with an estimated normal of 155 pounds (70.3 Kg.). She appeared to be fairly buried in thick layers of fat, as pictured in figure 1. The skin and mucous membranes were without blemish. The ocular muscles and fundi were normal. The tonsils had disappeared, and the teeth were in good condition. The thyroid gland was not palpable. The hands and the lymphatics were normal. The pulse rate was 80 and regular, the blood pressure 216 systolic and 130 diastolic and the cardiac sounds clear and of fair quality. The lungs gave forth numerous musical and sibilant rales of asthmatic type on inspiration and expiration, and there was a frequent irritative cough. The abdominal and pelvic viscera were impossible of palpation because of the extreme obesity. There was negligible edema of the lower extremities. Patellar reflexes could not be elicited because of fat.

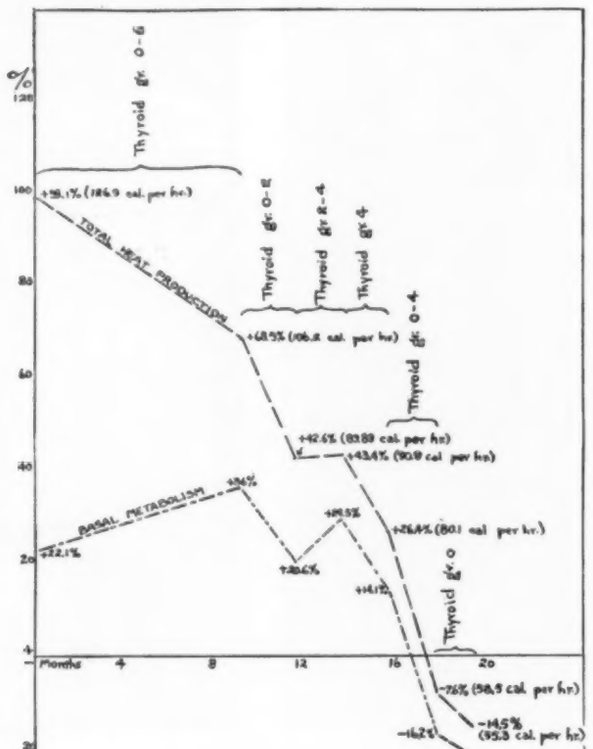

Fig. 4.—Metabolism studies. Total calories per hour are at basal rate.

Laboratory Reports.—The urine showed a slight trace of albumin, with occasional hyaline and granular casts. The specific gravity ranged from 1.020 to 1.034. There was no sugar. The level of sugar in the blood as determined by the dextrose tolerance test was 117 mg. during fasting; at one-half hour, one hour and two hours after the ingestion of 100 Gm. of dextrose it was 125, 160 and 170 mg. respectively. At the one and the two hour period the patient voided 0.17 and 0.2 per cent of sugar in the urine.

The hemoglobin content was 14.2 Gm. per hundred cubic centimeters, or 104 per cent. The erythrocytes numbered 4,740,000. The value for urea nitrogen was 11.3 mg. and for nonprotein nitrogen 30 mg. per hundred cubic centimeters of blood, with a ratio of 37.5 per cent. The cholesterol content was 188 and the uric acid content 3.1 mg. per hundred cubic centimeters. The sedimentation rate was 7, 28 and 50 mm. at one-quarter, one-half and three-quarter hour periods respectively. The Wassermann and the Kahn reactions were negative.

The basal metabolic rate (calories per square meter per hour) was 22.1 per cent above the average normal. There was a total output under basal conditions of 126.9 calories per

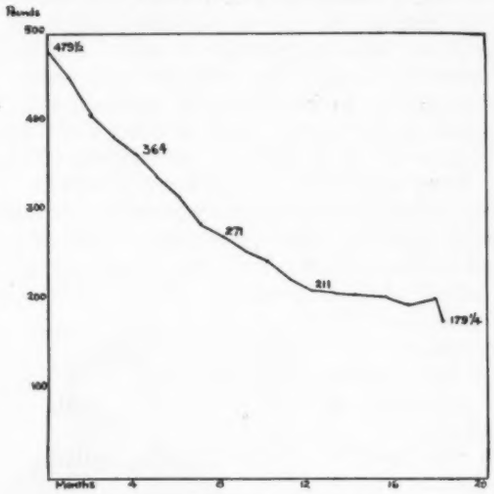

Fig. 5.—Loss of 300 pounds (140.6 Kg.) in eighteen months by dietary and endocrine therapy. The diet was 600 to 800 calories, and from zero to 6 grains (0.4 Gm.) of thyroid was administered. Operation followed.

hour. Since the patient's theoretical average normal output at ideal weight was 63.7 calories per hour, this gave a figure of + 99 per cent for the total heat production, which is practically double the normal (fig. 4).

The vital capacity was 1,500 cc., or 26 per cent of normal when calculated for the original weight. Calculated for the ideal weight, this would represent 43 per cent.

An initial electrocardiogram was not taken. One taken on Feb. 19, 1940, when the patient's weight was 197 pounds (89.4 Kg.), showed left axis deviation, so common in obesity, but no definite impairment. Initial fluoroscopic examination was not attempted, but on Sept. 25, 1939, when the weight was 257 pounds (116.6 Kg.) the total diameter of the heart was 15 cm. and there was evidence of slight ventricular enlargement.

Treatment.—Since it was thought that the patient was too lacking in self control to carry out a strict regimen at home, she was placed in a nursing home where she could be under constant supervision and dietary management. A diet of approximately 600 to 800 calories was prescribed in accordance with the principles already stated. Since it was calculated from her metabolic rate that a maintenance diet was approximately 4,000 calories, a diet of 600 to 800 calories would give a large deficit and result in a fairly rapid loss of weight. This occurred in accordance with expectations and is expressed graphically in figure 5.

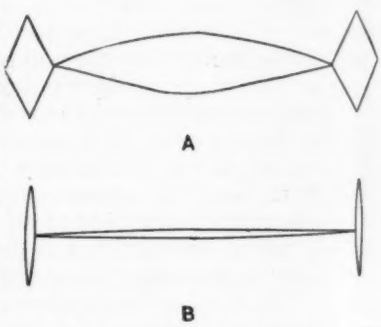

Fig. 6.—Type of incision in the plastic operation on the abdomen. *A*, before closure; *B*, after closure.

After the loss of about 40 pounds (18.1 Kg.) the weight became stationary for one week because of the appearance of moderate edema of the lower extremities. This edema persisted in varying degrees throughout most of the period of reduction and was successfully combated from time to time by the use of ammonium chloride and mercurial diuretics. The intake of fluids and chlorides presumably was curtailed, but control was not perfect. After the patient had been for several weeks on the reducing diet, thyroid was administered to offset

the reduction in metabolic rate which presumably had occurred from caloric restriction. Unfortunately, facilities were not available for metabolism tests at the nursing home.

The pulse rate varied from 74 to 100 for the first ten months and from 60 to 80 for the remainder of the period. The blood pressure became stabilized at an average level of from 120 to 136 systolic and from 60 to 80 diastolic. Vitamins were given in concentrated form throughout the reducing period.

Several complications ensued after 200 pounds (90.7 Kg.) had been lost. Dyspnea, weakness, nausea, excessive thirst and abdominal pain were noted on two or three occasions, at which times considerable acetone was present in the urine. These symptoms of acidosis were promptly checked by increasing the carbohydrates of the diet.

Within nine months the patient had reached 257 pounds (116.6 Kg.). She was permitted to return home to continue as an office patient. She did well for three months, but her weight became stationary at approximately 200 pounds (90.7 Kg.) after a loss of 279 pounds (126.5 Kg.). This weight persisted as a plateau for five months, as indicated in figure 5. At the end of that time she was hospitalized in the medical service of the New York Post-Graduate Medical School and Hospital, where she lost 17¾ pounds (8 Kg.) in twelve days. Part of this weight was edema fluid in the lower extremities resulting from varicose veins.

At the end of the twelve day period she was transfered to the surgical service of Dr. Ralph R. Moolten for removal of excess skin from the abdomen and arms. His report follows:

"An abdominal panniculus hung in apron-like formation to about halfway down the thighs. Unless well trussed up with an abdominal binder this apron would interfere with walking. The under surface was excoriated by perspiration and by soiling with urine.

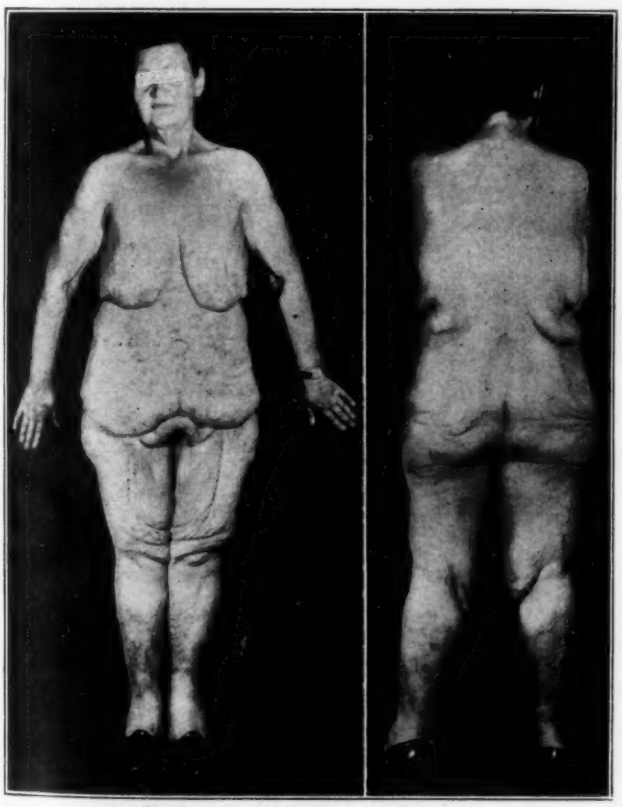

Fig. 7.—Patient before operation.

"At operation, instead of the usual elliptical incision from one anterior superior spine to the other, incisions were made as indicated in figure 7. The reason for the vertical incisions was to take up a large amount of redundant skin on the back and sides of the hips and thighs.

"With the patient under gas-oxygen anesthesia, the soft parts were resected down to the fascia. After suitable hemostasis, the skin was closed with interrupted silk sutures. Because of the diamond-shaped incisions at each end of the transverse one, the resulting final scar was H shaped. Enough skin was resected so that the incisions closed snugly but without undue tension. At all times during the operative procedure, the denuded areas were well covered with warm saline packs.

Fig. 8.—Arm after operation.

Nevertheless, there was considerable reaction, manifested by a pulse which varied in rate, quality and rhythm. The patient left the operating table in fair condition. The postoperative course in the main was uneventful, complicated only by small areas of slough at each outer angle of the wound. The specimens of tissue weighed 6¾ pounds (3 Kg.) and consisted of skin and subcutaneous tissue alone, with practically no fat. Flatness of the abdomen even in the upright posture resulted.

"The next problem was a cosmetic procedure on the arms. When the arms were extended the skin hung in long, ugly folds from the axillas to the bends of the elbows. The method of outlining the incisions was to have the patient sitting on a table and leaning on her extended arms with the palms slightly behind her. On the mesial surface of each arm an irregularly club-shaped line of incision was delineated with an indelible pencil, covering an area approximately 11 by 4½ inches (28 by 11 cm.). As in marking out the abdominal incision, it was definitely ascertained that the cut edges could be approximated without undue tension.

"The wounds on the arms also were closed with interrupted silk sutures, and healing occurred by first intention."

Excess skin was subsequently removed from both thighs in similar fashion. The appearance of the patient before and after operation is shown in figures 7 and 8.

COMMENT

This case emphasizes again that there is apparently no limitation to the amount of excess weight which can be removed with perfect safety. It also indicates that in grossly overweight persons rapid weight reduction may be maintained over considerable periods without injury to health. During the first four months the patient lost 115 pounds (52.1 Kg.) at an average rate of 29 pounds (13.2 Kg.) per month. At the end of eight months she had lost 208 pounds (94.8 Kg.) at an average rate of 26 pounds (11.8 Kg.) per month, and at the end of twelve months she had lost 268 pounds (121.5 Kg.) at an average rate of 22 pounds (10 Kg.) per month.

The loss of so much supporting tissue over a short period brought with it certain complications, however. It was interesting to find that the patient had almost lost the power of locomotion after returning to her home. She was unable to climb steps but could walk short distances on the level. At this point she was told that she might expect a return of power to the affected muscles, since it was assumed that the removal of infiltrated fat had left the muscles relatively too long to be effective. The prediction proved true, and in a few weeks the patient was able to take up activities of

housework and travel with practically normal facility. Another complication was the appearance of varicose veins, probably because of the loss of the supportive function of the subcutaneous fat. These will be treated surgically. In general health and mental attitude there has been a marked improvement. It is not uncommon for patients, when liberated from their prisons of fat, to express extreme gratification, and this patient was no exception.

Although initially the dextrose tolerance was definitely impaired, the patient was not classified as having diabetes. Poor tolerance of dextrose is frequently seen in obesity without diabetes, though the explanation of it is a problem.[6] At the close of the periods of reduction the dextrose tolerance had returned to a normal curve, with figures of 106, 166, 182 and 111 mg. per hundred cubic centimeters during fasting, at one-half hour, one hour and two hour periods respectively.

The initial elevation of blood pressure and the subsequent restoration to a normal level also are not unusual, since obesity per se elevates blood pressure [7] and reduction usually causes its diminution.

As to the cause of gross overweight in the case described, one cannot be too dogmatic. Undoubtedly, cases of such extreme obesity are rare, and for this reason one would expect to find some gross abnormality in glandular balance. It should be noted, however, that this patient had a basal metabolic rate which at + 22 per cent was greatly in excess of normal and a total metabolism under basal conditions of twice the normal. It cannot be said, therefore, that she lacked the ability to oxidize foodstuffs. It can be asserted with every assurance that to maintain her weight she must have been consuming large amounts of food, probably to the extent of more than 4,000 calories daily. At the close of the period of weight reduction there was nothing to indicate that this patient had a glandular system in any sense abnormal. In the search for hormones which may have a direct or indirect effect on the metabolism of fat, the importance of insulin is often overlooked. Given to animals or human beings, this substance frequently results in spectacular increases of weight.[8] It is not going too far afield to suppose that in certain persons the pancreas may be conditioned by diet or endocrine imbalance to produce a marked excess of insulin, with increased hunger and consequent obesity. It has further been shown [9] that by abstention from carbohydrate foods the pancreas may be oppositely conditioned to a state of such extreme latency as to be unable to respond to sudden demands placed on it. This factor may in part explain the indifference to food frequently manifested by obese persons after becoming accustomed to a reducing diet.

SUMMARY AND CONCLUSIONS

1. In a case of extreme obesity, in which by therapeutic means were secured losses in weight of 115 pounds (52.1 Kg.) in four months, 208 pounds (94.8 Kg.) in eight months, 268 pounds (121.5 Kg.) in twelve months and 300 pounds (136.1 Kg.) in eighteen months with an over-all average of 16⅔ pounds (7.6 Kg.) per month, a total loss of 304½ pounds (138.1 Kg.) was accomplished without any impairment in general health and with only a few minor adverse episodes.

2. Reduction in weight was accomplished by the use of submaintenance diets which averaged 600 to 800 calories and the careful administration of thyroid as a metabolic stimulant to offset the metabolism-depressing effect of such diets.

3. The restoration of blood pressure and dextrose tolerance to normal was a feature of this case.

4. The insulogenic factor has a possible role in the causation of obesity.

502 Park Avenue.

6. Short, J. J., and Johnson, H. J.: Glucose Tolerance in Relation to Weight and Age. A Study of Five Hundred and Forty-One Cases, Proc. A. Life Insur. M. Dir. America (1938) **25**: 237-257, 1939.

7. Short, J. J., and Johnson, H. J.: An Evaluation of the Influence of Overweight on Blood Pressures of Healthy Men: A Study of 3,516 Individuals Applying for Periodic Health Examination, Am. J. M. Sc. **198**: 220 (Aug.) 1939.

8. Short, J. J.: Increasing Weight with Insulin, J. Lab. & Clin. Med. **14**: 330 (Jan.) 1929. MacKay, E. M.; Callaway, J. W., and Barnes, R. H.: Hyperalimentation in Normal Animals Produced by Protamine Insulin, J. Nutrition **20**: (July) 1940. Campbell, W. R.; Graham, R. R., and Robinson, W. L.: Islet Cell Tumors of the Pancreas, Am. J. M. Sc. **198**: 445 (Oct.) 1939.

9. Sweeney, J. S.: Dietary Factors That Influence the Dextrose Tolerance Test: Preliminary Study, Arch. Int. Med. **40**: 818-830 (Dec.) 1927.

SHOULDER AND ELBOW LESIONS OF THE PROFESSIONAL BASEBALL PITCHER

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Every nation or tribe has a favorite sport in which its people often have more interest than they do in the many more serious vocations of life. The Americans, therefore, being no different from other peoples, have their own particular national sport—the American game of baseball. It has been my good fortune to study our pastime from many angles—as a player, as a fan and as a physician who has endeavored to rehabilitate or advise professional and amateur players.

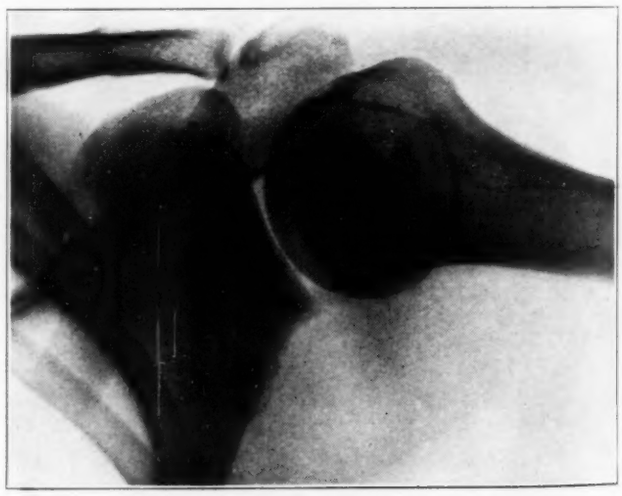

Fig. 1.—Typical pitcher's shoulder. Appearance at the age of 24; this man began pitching professional baseball at 19.

Of all the members of a ball team, the pitcher is the hero and the player on whom most depends. On many occasions I have been asked to designate the type of shoulder lesion that is disabling to the professional baseball pitcher. My answer has always been that the professional pitcher is subject to all the disabilities of the shoulder to which the average person is, namely subacromial and subdeltoid bursitis, irritation of the

The study of the disabilities of the professional baseball player has been made possible by the cooperation given us by Mr. E. G. Barrow and Mr. George Weiss of the New York Yankees and their associated clubs; also Mr. Larry MacPhail of the Brooklyn Dodgers cooperated

supraspinatus, irritation of the biceps tendon, traumatic synovitis and all the inflammatory diseases. Needless to say, his professional activities predispose him to the development of disability of the shoulder more frequently than one not engaged in an occupation which requires such excessive physical use of this articulation.

I believe that the symptoms and the pathologic changes of the so-called sore shoulder can be divided into two groups—the anterior and the posterior group. The anterior group, which is the most common, is composed of inflammatory and traumatic lesions of the supraspinatus tendon, the subacromial bursa, the subdeltoid bursa, the biceps tendon and the coracoid bursa.

Fig. 2.—The shoulder of a veteran pitcher aged 29.

The rotation of the head of the humerus with its rubbing of the supraspinatus against the acromion may produce a traumatic irritation or a fraying of this tendon. This same motion may produce a similar condition of the biceps tendon. Lesions of the coracoid region are produced by trauma between the head of the humerus and

Fig. 3.—Typical exostosis of a pitcher aged 23.

the coracoid process. At the finish of the "follow through," the arm is across the chest of the pitcher and the head of the humerus is pressed against the coracoid process, thus traumatizing the soft tissues between the head of the humerus and the coracoid process. The overhand pitcher irritates the supraspinatus, and the sidearm pitcher more often irritates the coracoid bursa.

The symptoms of the lesions of the anterior group are sensitiveness about the point of insertion of the supraspinatus and a discomfort on abduction of the arm. When the biceps tendon is involved one notes a sensitiveness in the region of the bicipital groove and

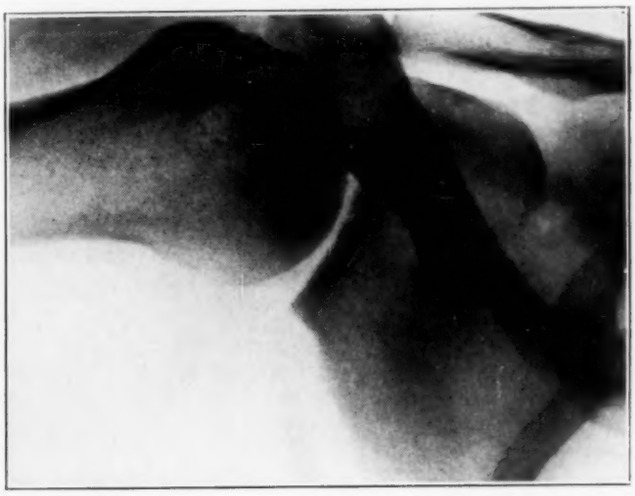

Fig. 4.—Veteran pitcher aged 28. He also had osteochondritis of elbow, shown in figure 10.

discomfort when the forearm is flexed against resistance. When these tendons are frayed by trauma actual crepitus may be elicited on active motion.

The treatment of the simple traumatic group is rest and local heat. When there is actual dissolution of the tendons, which become frayed, the biceps may respond to surgical treatment, but I do not feel that one could reconstruct a supraspinatus tendon and expect it to perform the strenuous and accurate function which

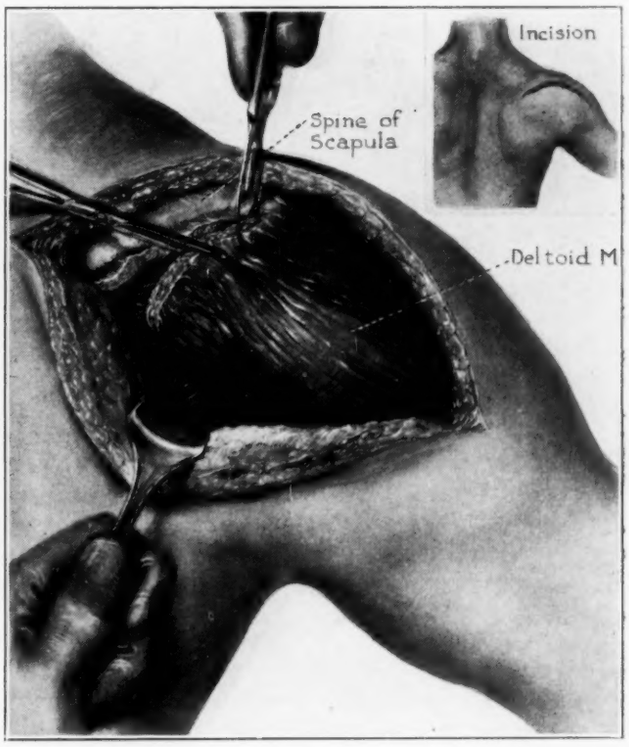

Fig. 5.—Detaching the posterior deltoid from the spine of the scapula.

is required of a professional pitcher. Fortunately, the majority of the traumatic group of injuries respond to the orthodox conservative treatment.

If the history is that of an inflammatory lesion, a search for foci of infection should be made and the proper treatment prescribed. Since professional athletes are human beings, not supermen, general health often

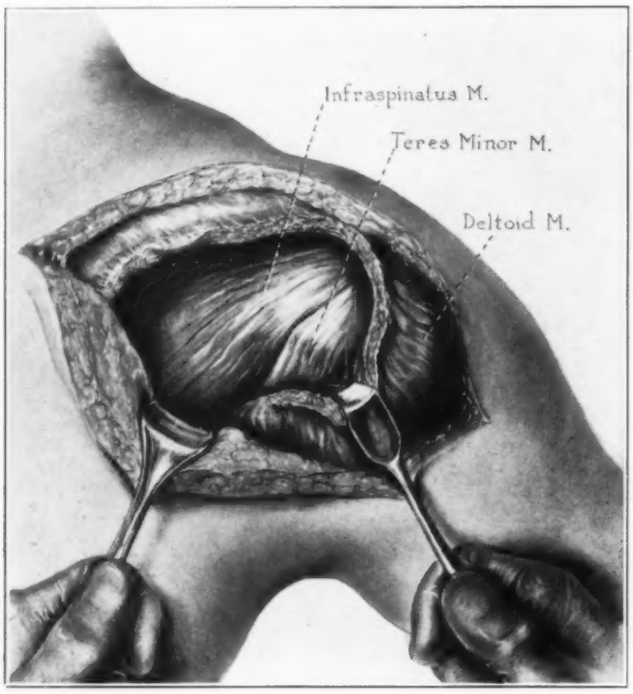

Fig. 6.—Exposure of the infraspinatus and teres minor muscles.

plays a part in the disability and should be the first thought in the mind of the medical examiner. Frequently, infected teeth or tonsils cause or aggravate the

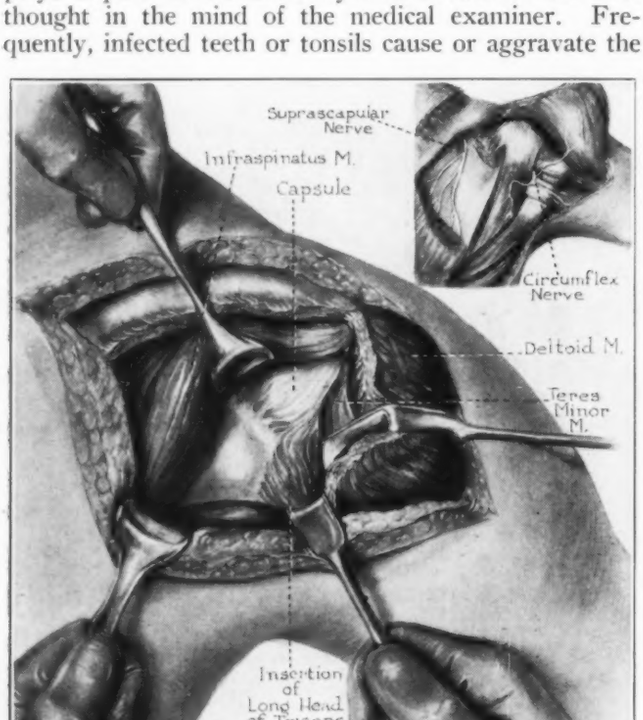

Fig. 7.—Exposure of the posterior capsule of the joint; the infraspinatus and the teres minor muscles are retracted.

so-called sore shoulder. Lesions of the inflammatory group respond to the removal of infection and to an improved general health regimen. Fortunately, one seldom sees a pitcher who is compelled to give up his profession because of a lesion in the anterior shoulder region.

The lesions that occur in the posterior part of the shoulder are the ones which unfortunately shorten the career of the professional pitcher. In the past few years I have been able to demonstrate a type of lesion in the shoulder of professional pitchers which I do not think one sees in other individuals of the same age period.

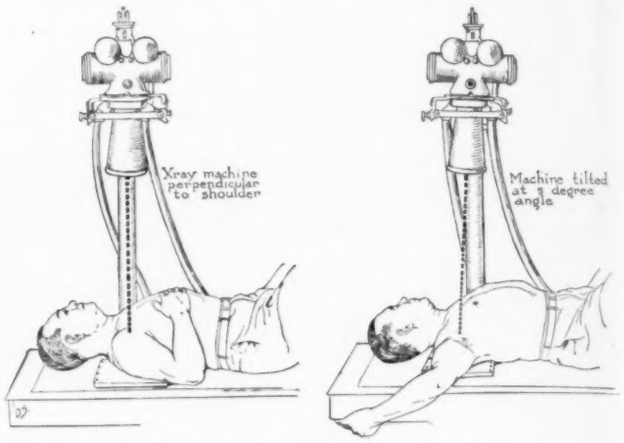

Fig. 8.—The exostosis or deposit in the posterior inferior region of the glenoid cannot be identified by the ordinary anterior posterior or posterior anterior view of the shoulder. Our x-ray technician, Mr. W. Ross Mitchell, developed the technic shown here. External rotation of the humerus with tilting of the x-ray tube about 5 degrees is the position which rotates the head of the humerus and the glenoid to a position which throws the thickened area in relief.

Because of the excessive use of the arm and the tremendous pull on the posterior capsule and the triceps tendon, there develops on the posterior inferior border of the glenoid fossa a deposit of bone strikingly similar to the osteoarthritic deposit that one sees in older people. The location of this deposit is such that it produces an irritation of the capsule and of the synovial

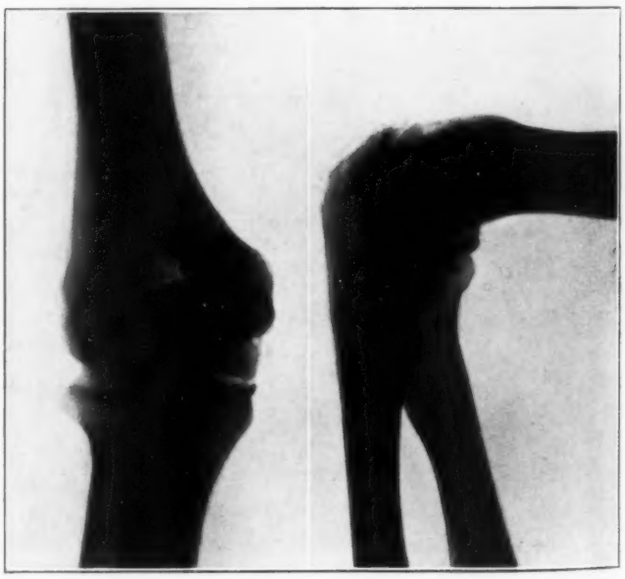

Fig. 9.—Typical osteochondritis of the elbow. The patient was operated on in 1925 at age of 26; he continued as a professional pitcher until 1940, a period of fifteen years. Roentgenogram taken at age of 41.

membrane. This exostosis or deposit also produces an irritation of the circumflex nerve with referred pain to the deltoid region. The symptoms are local discomfort and sensitiveness in the posterior shoulder plus referred pain to the deltoid. When the player attempts to throw hard after one or two innings, he suffers so much pain

and discomfort that he is unable to continue in the game (figs. 1, 2, 3 and 4).

Careful observation of the position of the arm and the arc of motion helps in the proof of the cause of dis-

Fig. 10.—Veteran pitcher aged 28 with osteochondritis and multiple loose bodies in olecranon fossa.

ability. On observing a professional pitcher as he "warms up," throwing a ball easily while he gradually increases its speed, one will notice that when he begins to "stretch" he seems to be trying to throw his arm at the catcher. After the "warm up," he reports that his arm is "loose" and feels fine. This statement is true,

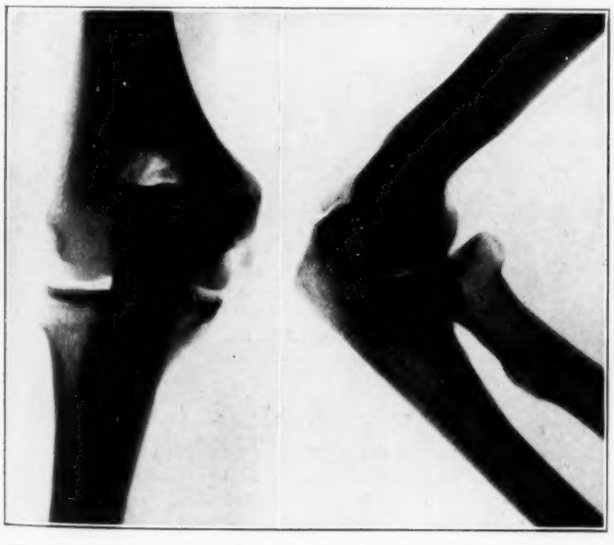

Fig. 11.—Typical loose body near internal epicondyle of a pitcher aged 23.

because to be effective his arm must be relaxed at the finish of the delivery. When the arm is "tight" the muscles are spastic and effectiveness is lost. One does not have to draw on the imagination to appreciate the tremendous pull on the posterior shoulder as the weight of the arm is swished forward in a flail-like motion obliquely across the body. This constant strain tends to cause the development of a pathologic process in the posterior and inferior margin of the glenoid fossa which is strikingly similar to the formation of the exostosis in the other joints that have been subjected to excessive strain and overuse. Fortunately, this is not a constant disability of the "veteran." I have examined professional pitchers who after twenty years of active baseball life show no such deposits, while on the other hand I have seen youngsters of 20 or 21 years in whom these same changes have already occurred. They may develop gradually with an increase in severity or may have a sudden onset. The pitcher may be able to tell the day and the pitch when he suffered this

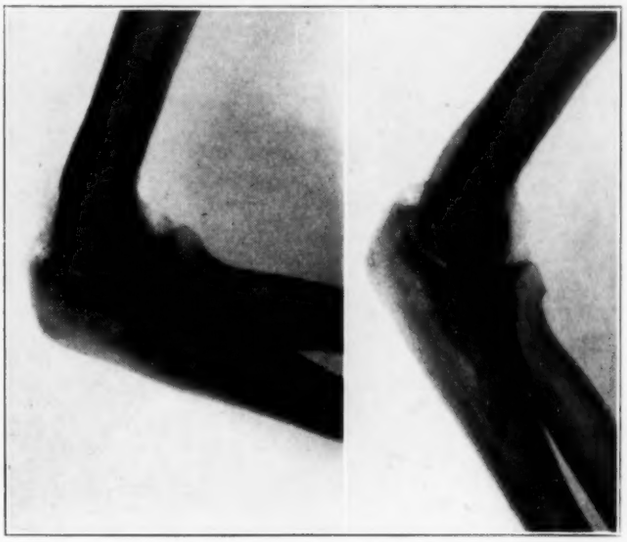

Fig. 12.—Osteochondritis of the elbow of a pitcher aged 21.

sudden pain in the back of his shoulder. The pain persists and he can throw "hard" only a few innings and then the local posterior pain plus the referred pain to the deltoid becomes so great that his arm feels "dead." It is a common observation that deposits in other joints may exist for a considerable time, causing no inconvenience. For instance, when a sneeze is said

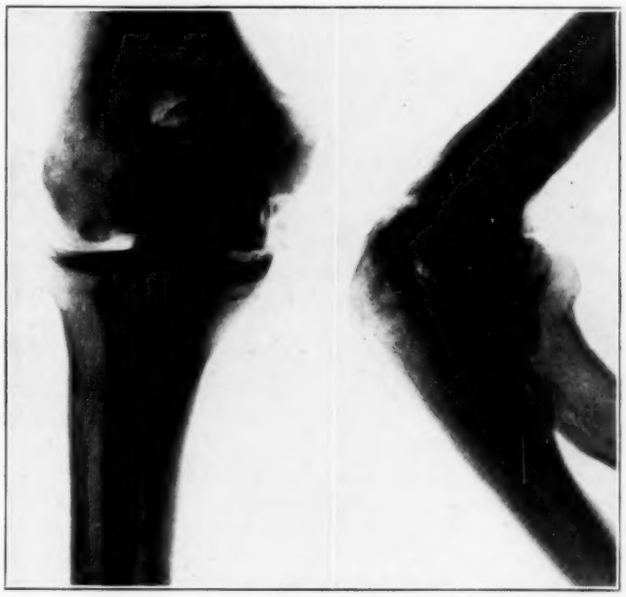

Fig. 13.—Osteochondritis of the elbow of a pitcher aged 26; no disability.

to produce an attack of lumbago, the roentgenogram may show deposits which have been years in developing. I do not believe one can say that a sudden strain is responsible for the lesion I am attempting to describe.

The treatment of the exostosis or deposits in this part of the shoulder is difficult, as it is distinctive of the baseball player. It causes no pain or discomfort for normal function of the shoulder, not even in throwing a baseball at moderate speed. Symptoms are produced only when the baseball is thrown hard. Therefore, it

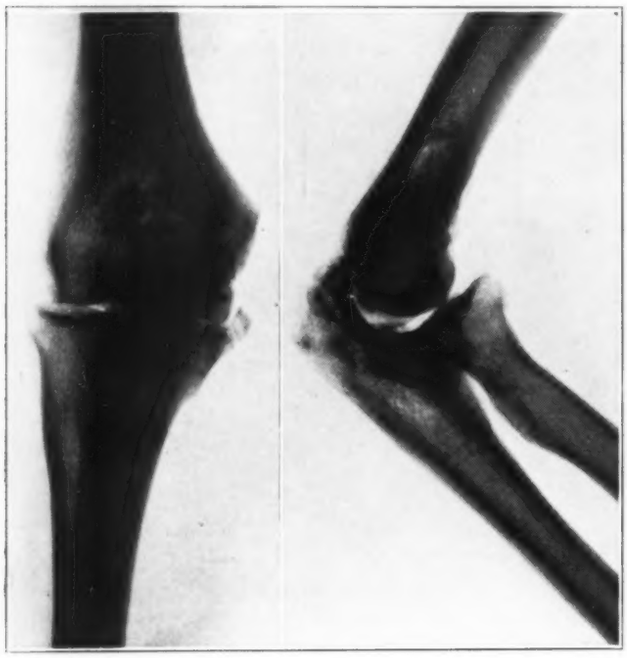

Fig. 14.—Osteoarthritis of the elbow of a veteran pitcher.

is not a question of having the shoulder perform a normal function but of rehabilitating it to perform again the abnormal function that produced the pathologic process.

If one desires to explore the posterior inferior border of the glenoid at the point of thickening of the margin of the glenoid, it can be done by making a curved incision over the posterior shoulder, detaching the scapular section of the deltoid and retracting it laterally. Then, with safety, one can approach the posterior capsule of the joint by separating the teres minor from the infraspinatus. The infraspinatus muscle protects the infraspinatus nerve, and the retraction of the teres minor carries with it the circumflex nerve. It is now possible to remove the exostosis. My experience has not been sufficient, however, to advocate this operative procedure with the assurance that a baseball pitcher will be able to resume his profession (figs. 5, 6, 7 and 8).

ELBOW LESIONS

The elbow lesions of the professional pitcher fall within the group of so-called osteochondritis and may appear any time during his career. It is not unusual to see loose bodies in the olecranon fossa in youngsters in their late teens who began to pitch for their teams as boys of 12 and 13. Curiously enough, aside from the olecranon fossa and the tip of the coronoid process, these semidetached bodies also appear in the region of the internal epicondyle and cause irritation of the ulnar nerve. Surgical removal does away with all symptoms and restores function so that pitching is possible.

In 1925 I removed a loose body from the olecranon fossa of an athlete who continued as a professional pitcher for fifteen years. The roentgenogram made at the end of this time (fig. 9) shows what is the typical osteochondritis of the professional pitcher (figs. 10, 11, 12, 13 and 14). A discussion of the etiology and pathology is unnecessary. It is an established fact that trauma of hyaline cartilage produces hypoplasia and the development of loose bodies. As I have stated, this condition is not extremely disabling. A large percentage of the veteran ball players are unable to extend their throwing arm fully, and roentgenograms will disclose that this obstruction is caused by osteophytes or loose bodies. In a large number of cases these loose bodies produce no symptoms.

4 East Madison Street.

Clinical Notes, Suggestions and New Instruments

THE EFFECT OF ALKALI ON CRYSTALLURIA FROM SULFATHIAZOLE AND SULFADIAZINE

LEON SCHWARTZ, M.D.; HARRISON F. FLIPPIN, M.D.; JOHN G. REINHOLD, PH.D., AND ALBERT H. DOMM, M.D., PHILADELPHIA

Recent medical literature contains many reports of hematuria, oliguria, anuria, pain in the loin and uroliths associated with the use of sulfapyridine or sulfathiazole. These renal complications are due, in part if not entirely, to the presence of sulfapyridine or sulfathiazole crystals in the urinary tract. Certain of these toxic effects necessitate discontinuance of chemotherapy at a time when treatment with these drugs is most desired. We have previously [1] stressed the importance of maintaining urinary outputs of at least 1,200 cc. daily in order to facilitate the excretion of these compounds from the body. At this time we wish to present briefly our observations on the effect of alkali on the incidence and number of crystals detected in the urine of patients receiving sulfathiazole or sulfadiazine.

Crystal Counts in Relation to the Use of Alkali

Sulfathiazole Treated Group	Without Alkali			With Alkali		
No. of patients	32			18		
No. of urine samples	93			56		
Crystal counts *	Acid, %	Alkaline, %	Total, %	Acid, %	Alkaline, %	Total, %
0	30.0	2.2	32.2	23.2	41.1	64.3
+	6.5	...	6.5	10.4	5.4	15.8
++	15.0	1.1	16.1 67.8	18.0	1.9	19.9 35.7
+++	40.9	4.3	45.2	....	...	....
Total	92.4	7.6	100.0	51.6	48.4	100.0

Sulfadiazine Treated Group	Without Alkali			With Alkali		
No. of patients	31			19		
No. of urine samples	87			54		
Crystal counts *	Acid, %	Alkaline, %	Total, %	Acid, %	Alkaline, %	Total, %
0	68.9	5.8	74.7	38.9	44.4	83.3
+	9.2	1.1	10.3	9.3	3.7	13.0
++	8.1	1.1	9.2 25.3	3.7	...	3.7 16.7
+++	5.8	...	5.8	...	...	...
Total	92.0	8.0	100.0	51.9	48.1	100.0

* 0= no crystals, + = <25 crystals per low power field, ++ = 25 to 100 crystals per low power field, +++ = >100 crystals per low power field.

Aided by a grant from the American Philosophical Society.

From the Committee for the Control of Pneumonia, Philadelphia General Hospital.

1. Flippin, H. F.; Reinhold, J. G., and Schwartz, Leon: Sulfapyridine and Sulfathiazole Therapy in Pneumococcic Pneumonia, J. A. M. A. **116:** 683 (Feb. 22) 1941.

While studying the comparative therapeutic effectiveness and toxicity of sulfathiazole and sulfadiazine on pneumonia, special studies were carried out on the urine of 100 adult patients. Of this group 50 received sulfathiazole and 50 sulfadiazine. A total of 290 samples of urine were examined, of which 180 (93 sulfathiazole, 87 sulfadiazine) were from patients who received no alkali and 110 (56 sulfathiazole, 54 sulfadiazine) were from patients to whom sodium bicarbonate was administered in an amount equal to that of the drug. In general, the two groups, as regards both drug and alkali, were comparable.

Samples (15 cc.) of urine passed before breakfast were placed in a test tube and sediment was allowed to separate at room temperature for from four to six hours. A drop of urine, removed by means of a pipet, from the bottom of the test tube was examined under the low power of the microscope and crystal counts were recorded on the basis of the average number of crystals of the drug observed in ten separate fields. All samples of urine were tested with litmus and those giving a neutral reaction were included with those classed as alkaline.

As indicated in the accompanying table, the incidence and number of crystals of the drug found in the urine samples were distinctly less in the group of patients receiving alkali together with either sulfathiazole or sulfadiazine. This difference was statistically highly significant (chi square) in the sulfathiazole-treated group but fell short of significance in the sulfadiazine treated patients. In both groups cystals were found more frequently and in greater numbers in acid urine. Patients receiving sulfadiazine showed fewer crystals in their urine than did the sulfathiazole-treated group. This finding is in keeping with previous observations [2] on the comparative renal toxicity of these drugs.

Crystal counts made by the Addis technic on centrifuged freshly voided specimens indicated the existence of a similar relationship to administration of alkali and to urine reaction, although the total number of crystals found was smaller.

CONCLUSION

It would seem advisable, in order to decrease the incidence and number of crystals of these drugs in the urine, to administer an alkali with sulfathiazole, and possibly also with sulfadiazine.

2031 Pine Street.

REDUCTION OF GROWTH RATE IN GIGANTISM TREATED WITH TESTOSTERONE PROPIONATE

FRED P. CURRIER, M.D.; CHARLES H. FRANTZ, M.D., AND RAY VANDER MEER, M.D., GRAND RAPIDS, MICH.

During the past five years several authors have suggested that there exists an antagonistic action between certain hormones and those of the pituitary. More specifically it was suggested by von Drigalski and Diethelm [1] that the male sex hormone acts as a physiologic brake on the growth-producing hormone of the anterior lobe of the pituitary gland. They described the use of testosterone propionate in large doses in a case of hypophysial gigantism with rather uncertain effects of the treatment. It would seem that any decrease in the rate of growth would be due either to a decrease in the amount of growth-producing hormone of the anterior lobe of the pituitary gland or to an earlier closure of the epiphysial line. It was suggested by MacCullagh [2] that testosterone propionate did not increase the rate of the epiphysial closure beyond normal.

The following is a report on the rate of growth in a case of hypophysial gigantism during treatment with testosterone propionate over a period of two years.

REPORT OF CASE

History.—A boy aged 11 years, was referred to us because of mental retardation and gigantism.

The father, aged 50, is living and well. He is the tallest in the family and measures 5 feet 11½ inches (182 cm.). He has four brothers, and the youngest is 5 feet 4 inches (162 cm.) tall. There has been no history of gigantism on his side of the family.

The mother died at the age of 44 of cancer of the uterus. She was 6 feet 1 inch (185 cm.) tall and weighed 198 pounds (89.8 Kg.) when in good health. Her father was 6 feet 3 inches (190 cm.) tall, and he is still living at the age of 66. A maternal uncle was 6 feet 3 inches tall and a maternal great uncle was 6 feet 5 inches (196 cm.) tall. There has been no history of chorea, migraine, insanity, diabetes or heart disease in the family. The mother had had tuberculosis at the age of 20, with no recurrence.

Growth of Patient With and Without Treatment

Treatment	Increase in Height
Eighty-six days with testosterone propionate	¼ inch
One hundred and six days without testosterone propionate	½ inch
Fifty-six days with testosterone propionate	½ inch
Forty-nine days with testosterone propionate	0
Two hundred and twenty-five days with testosterone propionate	½ inch

The mother had a difficult labor of twenty-four hours following an early rupture of the membranes and was finally delivered by forceps of the patient, who at birth weighed 7½ pounds (3,403 Gm.) and was 24½ inches (62 cm.) tall. He was a bottle-fed child. There was no history of injury and no unusual childhood diseases. He walked at the age of 13 months but was slow in speech development, talking at 3½ years. Evidence of early gigantism was already present at the age of 2 years. At that time he was 39 inches (99 cm.) tall and weighed 32¾ pounds (14.9 Kg.). When 3 years of age, he was sent into the orthopedic clinic of Blodgett Memorial Hospital with inversion of both feet. He was again seen the next year and referred to the pediatric department, in which the observation of mental retardation was made and the fact was noted also that he was microcephalic, the circumference of his head being 19¾ inches (50 cm.). At the age of 10 he was again seen in the orthopedic clinic, and a note was made that he showed considerable increase in the length of all long bones with accentuation of the previously noted inversion of the feet. Roentgen examination at that time revealed normal osseous structure except for a slight abnormality at the epiphysial line of the right ankle. A roentgenogram of the skull showed a shallow pituitary fossa but no evidence of any other abnormality.

On general examination on Feb. 25, 1939 the boy was seen to be unusually tall—68¼ inches (173 cm.). He weighed 121 pounds (54.9 Kg.). He was microcephalic. The hair of the scalp was thin, and there was no pubic hair. The skin was fair and pale. The eyes showed normal coloring of the scleras; the pupils were round and equal, and they reacted to light and in accommodation. Extraocular movements were normal. The fundi and fields were normal. The ears showed no abnormality, although the hearing was decreased. The boy heard a watch on the left side at 2 inches (5 cm.) and on the right at 5 inches (13 cm.). There was no nasal obstruction and no deviation of the septum. The mouth showed normal teeth with occasional caries. The tongue was normal in size and was without tremors. The throat was slightly injected. The tonsils were present. The lungs were clear to auscultation and percussion. The heart was normal as to size, rhythm and sounds. The blood pressure was 108 systolic and 65 dias-

2. Flippin, H. F.; Rose, S. B.; Schwartz, Leon, and Domm, A. H.: Sulfadiazine and Sulfathiazole in the Treatment of Pneumococcic Pneumonia: A Progress Report on Two Hundred Cases, Am. J. M. Sc. **201:** 585 (April) 1941.

1. von Drigalski, Wolf, and Diethelm, Lothar: Regressive Skeletveränderungen bei hypophysären Hochwuchs, Klin. Wchnschr. **16:** 628-632 (May 1) 1937.

2. MacCullagh, E. P.: Treatment of Testicular Deficiency with Testosterone Propionate, J. A. M. A. **112:** 1037-1044 (March 18) 1939.

tolic. The abdomen showed no masses or tenderness. The liver, the spleen and the kidneys were not felt. Rectal examination gave negative results.

Both deep and superficial reflexes were normal. The patient reacted normally to pain, light touch temperature, motion and position and vibration.

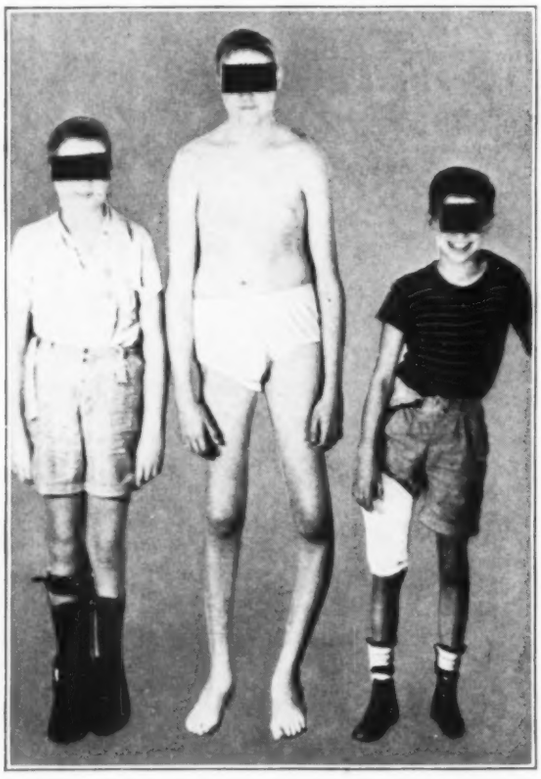

Fig. 1.—Patient (in center) at the age of 12 years (on May 5, 1939), 70¼ inches (178.4 cm.) tall. Normal heights for this age range between 50 and 62 inches (127 and 157 cm.). Our patient exceeds the tallest boy in this group by about 7 inches (18 cm.).

The lower extremities showed decided angulation of the right ankle, knee and hip. The right femur was longer than the left. The right calf was ¾ inch (1.9 cm.) less in circumference than the left. The right thigh was externally rotated and abducted.

The blood showed 85 per cent hemoglobin. The erythrocyte count was 4,500,000 and the leukocyte count 6,000, with 72 per cent polymorphonuclear leukocytes, 24 per cent lymphocytes, 1 per cent monocytes and 3 per cent eosinophils. Urinalysis showed the urine to be entirely normal. The dextrose tolerance test showed a normal curve. The level of nonprotein nitrogen in the blood was 30 mg., of phosphorus 4.6 mg. and of calcium 8.8 mg. per hundred cubic centimeters. The Kahn reaction was negative. The basal metabolic rate was 26 per cent.

The diagnosis made was (1) gigantism on the basis of pituitary disturbance and (2) mental retardation.

Treatment and Course.—On March 17, 1939 wedge osteotomy at the junction of the neck and shaft of the right femur was done in an attempt to correct the antiflexion and coxa valga. The patient made an uneventful recovery.

Treatment with testosterone propionate was started on March 29, in doses of 5 mg. every four days.

On May 5 the cast was removed, and the patient's height was 70 inches (178 cm.). Therapy with testosterone propionate was continued up to July 29, at which time his height was 70¼ inches (178.4 cm.).

During the next three and one-half months no testosterone propionate was used, and the patient gained ½ inch (1.3 cm.).

On November 13 the boy fell off a chair and broke his right femur. He was hospitalized; traction was used, and later on a cast was applied to the leg.

On March 9, 1940 the cast was removed and the boy was allowed to walk on crutches. His height was then 72¾ inches (185 cm.). Treatment with testosterone propionate had been resumed on January 29 and has been continued since then.

On May 4 and on June 21 his height was still 72¾ inches.

On Feb. 15, 1941 he was 73¼ inches (186 cm.) tall (fig. 3).

As far as we can determine, the orthopedic operation had no effect on the patient's height; nevertheless we submit the figures in the accompanying table as to the patient's rate of growth when he was not in the cast and was not using any orthopedic appliances. The consecutive periods of treatment began on March 29, 1939.

Statistics on heights [3] have shown the average height at birth to be 21 inches (53 cm.) and at 13 years of age 59 5/100 inches (150 cm.). Thus the average gain for thirteen years is 2 92/100 inches (7.4 cm.) a year. Our patient's height at birth was 24½ inches (62 cm.) and at the age of 11 was 68¼ inches 173 cm.). Thus his average gain per year was 3 97/100 inches (10 cm.) as compared with the normal 2 92/100 inches (7 cm.). While he was under treatment from the age of 11½ years to 13½ years his average gain per year was reduced to 2½ inches (6 cm.). This is 42/100 inch (1 cm.) less per year than the rate of growth of a normal child and 1 47/100 inches (3.6 cm.) per year less than his previous rate of growth.

Figure 2.

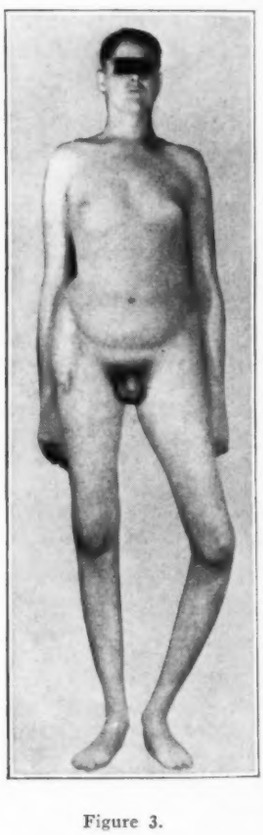

Figure 3.

Fig. 2.—The patient at the age of 12 years shows increased length in all long bones, some degree of microcephalism, prominence of breast tissue, absence of pubic hair but normal development of the testes and the male organ.

Fig. 3.—The patient at the age of 13 years measures 73¼ inches (186 cm). There is still considerable prominence of the breast tissue. Pubic hear is present, and the testes and the male sex organ have developed to the size normal for this age. The boy has been treated with testosterone propionate for two years.

CONCLUSION

In a case of hypophysial gigantism treatment with testosterone propionate in small doses apparently had a deterrent action on the rate of growth over a period of two years.

626 Medical Arts Building.

3. Baldwin and Wood: Children's Bureau, U. S. Department of Labor.

Special Articles

NEUROSURGICAL TREATMENT OF CERTAIN ABNORMAL MENTAL STATES

PANEL DISCUSSION AT CLEVELAND SESSION

EDITORIAL NOTE.—*Following is a condensed report of a panel discussion on the neurosurgical treatment of certain abnormal mental states, presented before the Section on Nervous and Mental Diseases at the annual session of the American Medical Association in Cleveland. The technic was relatively new for the presentation of a medical subject.* DR. PAUL C. BUCY, *Chicago, acted as moderator. The following physicians took part in the discussion:*

WALTER FREEMAN, Washington, D. C.
M. A. TARUMIANZ, Farnhurst, Del.
THEODORE CHARLES ERICKSON, Montreal.
J. G. LYERLY, Jacksonville, Fla.
H. D. PALMER, Philadelphia.
ROY R. GRINKER, Chicago.

Following the discussion, opportunity was granted for questions from various members of the group to one another and also from those in attendance on the meeting. The condensed report has been edited in order to avoid duplication and to eliminate confusing statements. The discussion, however, reflects the nature of the method of presentation.

DR. WALTER FREEMAN, Washington, D. C.: Prefrontal lobotomy consists in the surgical interruption of certain tracts in the white matter of the frontal lobes. It has been employed in the treatment of some of the intractable psychoses and neuroses. First reported by Egas Moniz of Lisbon in 1936, the operation was introduced into this country by Freeman and Watts and was later modified by them. It has been employed by them in some 80 cases during the past five years. The best results have been obtained in cases of involutional depression and the obsessive compulsive states.

The technic is, briefly, as follows: The line of the coronal suture is marked out on the scalp, an incision is then made over this suture, and the skull is trephined 5 cm. above the zygoma. When hemostasis has been secured an instrument is introduced into the opening and the white matter is cut in the plane of the coronal suture. This is most important because if the incision is made in front of this plane the desired results are not obtained. If one gets too far back there is too much mental dulling; if one slips down into the middle fossa there is bleeding, and if one gets too near the midline one may catch the anterior cerebral artery.

The result of the operation is marked attenuation of the impact of the psychotic ideas on the patient. The ideas may continue of their own momentum but the affect is bleached. It is as though the patient were no longer interested in the ideas, whether delusional, hallucinatory or obsessive. He loses interest in himself.

I think that these results are obtained because this operation cuts across a band of fibers connecting the thalamus with the frontal lobe. As a result the nucleus medialis dorsalis of the thalamus degenerates. Following the operation the cortex is histologically intact. Its lamination is well preserved. However, there is some atrophy of the frontal pole postoperatively, as I have demonstrated twice by pneumoencephalography.

In the electroencephalogram there are no distinct changes seen between the preoperative and postoperative records. With the intelligence tests that I have used there is no distinct difference between the results before operation and two weeks after operation in some 40 cases. The same holds true for the Rorschach test. Other personality tests administered later on indicate a widening of the horizon of the individual, lack of preoccupation with self, a diminution in the neurotic tendency and a replacement of introversion by extraversion.

Of the 80 patients 20 are regularly employed, 22 are keeping house, 7 are partially employed and only 5 are in institutions. There have been 3 operative deaths in the series, all occurring among the first 30 patients.

I think on the basis of observation of these cases that the frontal lobes are concerned with foresight, that is, with looking into the future, and with the consciousness of the self. The patient loses interest in himself following operation. He is no longer upset by the idea that he has syphilis or that he is being poisoned, spied on and the like. The ideas continue of their own momentum for a while. The mannerisms and compulsions and other motor activities persist even longer.

From the social point of view these patients show the maximum change. As a rule they are a little cheerful, a little outspoken, sometimes rather tactless. They say the first thing that comes into their minds without weighing the question as to what the effect will be on the listener; hence they are sometimes rather undignified, especially in the medium of the family. The reduction in the consciousness of the self applies equally well to the bodily organs. Patients who had been confirmed hypochondriacs no longer are interested in the functioning of their organs. Their lack of concern and their lack of self consciousness is outstanding.

It is good for us to have a little self consciousness, it is good for us to be a little concerned over the future, it is good for us to be able to contemplate and to speculate, because these are some of the highest of human traits; but when concern over the future leads to blocking of all action, when we become self conscious to the extent that we believe we are being poisoned or followed, when we contemplate and speculate way off in the stars some place and lose interest in our dinners and the comic strip; and when thoughts come into consciousness with the intensity of sound, then prefrontal lobotomy may offer something of importance in the handling of these serious neuroses and psychoses.

MODERATOR BUCY: Dr. Freeman, you mentioned various possible complications, such as damage to the anterior cerebral artery, getting down into the temporal fossa or perhaps cutting a little too far posteriorly and producing a vegetative state. How often do such complications occur?

DR. FREEMAN: There have been 2 patients suffering from hemiplegia, 1 of them due to cutting the anterior cerebral artery and the other to getting the lesion too far back in the basal ganglion. There are 5 patients who are necessarily institutionalized, some of them because the operation was inadequate and some because it was too extensive.

MODERATOR BUCY: Do you have any reason, other than the reasons you have stated, for attributing the effect to interruption of afferent pathways from the thalamus to the frontal lobes rather than interruption of pathways connecting the frontal lobes to other parts of the brain?

DR. FREEMAN: I have studied some sections behind the plane of the incision and have found relatively unimportant degenerations in these fibers from the cortex to the more basal portions.

DR. J. G. LYERLY, Jacksonville, Fla.: Dr. Freeman, you stated that with the means of testing that you used there has been no evidence of damage to the patient psychologically. Does that mean you think there are other means of determining damage that you have not used?

TABLE 1.—*Diagnosis and Postoperative Results in Dr. Lyerly's Cases*

Diagnosis	Greatly Improved	Moderately Improved	Slightly Improved	Temporarily Improved or Failures	Total	Employed
Involutional melancholia	14	4	4	2	24	13
Manic depressive	2	3	1	2	8	2
Schizophrenia	..	..	1	..	1	..
Psychoneurosis with depression	2	3	..	..	5	3
Psychopathic personality	..	..	..	1	1	..
Total	18	10	6	5	39	18
Percentage	46.2	25.6 (71.8)	15.4	12.8		46.2

Seventeen of these patients were operated on at the Florida State Hospital at Chattahoochee.

DR. FREEMAN: Nichols and Hunt devised some special technic, using arithmetical progressions and also Halstead's equivalent and nonequivalent stimuli, and in their case of bifrontal lobectomy they were able to discover defects, although their patient had an intelligence quotient of around 120. I do not say that there are no defects in these persons. My idea, and I think it is shared by others, is that the defect is in the motivation rather than in the equipment. In other words, as Brickner originally stated, the process which enables us to add two and two and find that the result is four is different from the motive that causes us to add two and two and find out the result is four. These patients are satisfied before they reach perfection.

RESULTS IN THIRTY-NINE CASES

DR. LYERLY, Jacksonville, Fla.: In performing this operation I remove a button of bone in the prefrontal region of the skull with a trephine about over the middle of the second frontal convolution, halfway between the tip of the frontal lobe and the rolandic area. A short incision is made in the cortex at this point and a lighted brain speculum is inserted. Then by blunt dissection transverse cuts are made through the white matter. I try not to go through the cortex at any other point so as not to injure any vessels or get any bleeding. The incision is made just anterior to the anterior horn of the lateral ventricle. Since doing this operation first in 1937 there have been 39 cases up to 1941. Most of the patients were operated on two or more years ago; 11 in 1937, 15 in 1938, 8 in 1939 and 5 in 1940. There were 17 men and 22 women. The average age of the patients was 49 years, varying from 26 to 78 years. The majority, 24, suffered from involutional melancholia. The average duration of the symptoms was forty and six-tenths months, ranging from three months to twenty-seven years. The average gain in weight after operation was 30 4/10 pounds (14 Kg.). The greatest gain in weight in one case was 97 pounds (44 Kg.). That patient doubled her weight. She weighed only about 90 pounds (41 Kg.) before operation.

In classifying these cases the diagnosis was made by one or more psychiatrists in addition to myself, and frequently the services of a psychologist were used in making psychometric tests before and after operation. I have grouped these cases into greatly improved, moderately improved, slighty improved and temporarily improved. By "greatly improved" I mean the patients were restored to practically normal individuals, were able to be discharged from the hospital and became socially adjusted and returned to work. By "moderately improved" I mean that the patients became socially adjusted individuals and were discharged from the hospital but for various reasons they did not go back to work. Some of these patients were on insurance. By "slightly improved" I mean that the patients could not be discharged from the hospital, but their depression and mental suffering were greatly relieved and they were no longer such a problem in the hospital. They no longer required tube feeding. By "temporarily improved" or "failures" I mean the ones that improved only temporarily and later relapsed or in some cases went from a depressed state to a manic or hypomanic state. The "greatly improved" formed 46.2 per cent, and 25.6 per cent were "moderately improved." Thus in 71.8 per cent of the cases the operation produced definitely beneficial effects. The slightly improved formed 15.4 per cent, and the temporarily improved or failures 12.8 per cent.

In table 2 I have correlated the duration of the symptoms and the postoperative gain in weight with the degree of improvement. The patients who made the best improvement are the ones who had the shorter duration of symptoms and the ones who had the largest gain in weight after the operation.

DR. ROY GRINKER, Chicago: I must confess that I do not understand the correlations indicated. I do not see a great deal of difference in the average duration of symptoms of the "greatly improved" and the "slightly improved." Gain in weight is merely evidence of improvement in the psychosis and, no matter what you do, when the psychosis is improved the patient gains weight, so I do not see the significance of the correlation.

TABLE 2.—*Correlation of Postoperative Results with Average Preoperative Duration of Symptoms and Average Postoperative Gain in Weight in Dr. Lyerly's Thirty-Nine Cases*

	Greatly Improved	Moderately Improved	Slightly Improved	Temporarily Improved or Failures
Duration of symptoms	14.6 mos.	53.2 mos.	15.3 mos.	21 mos.
Gain in weight	38.3 lbs.	32.1 lbs.	12 lbs.	—8 lbs.

DR. LYERLY: These average figures do not represent the actual picture. In the majority of cases the shorter the duration of symptoms, the greater the improvement.

DR. GRINKER: It also appears to me that in some instances the duration of the disease prior to operation has been very short.

DR. FREEMAN: I have been accused of that too.

DR. LYERLY: No, I would not say that. I have adopted the plan that the psychiatrist turns the patient

over to me for operation when he thinks that is the best procedure to use or that other methods have failed. Many of the patients have had either insulin or metrazol shock therapy. In some of the cases the psychiatrist thought that shock therapy was not indicated or would be too dangerous and that the operation would be the less severe procedure.

DR. GRINKER: I note that one patient had been ill for only four months, another for six months and another for seven months. It seems to me that these are exceptionally short periods to test out other methods of therapy.

DR. LYERLY: I agree that four months was a rather short time but that was one of the early cases. I do not think we would operate on a patient that early now. That was in 1937 or 1938, and at that time we did not know exactly what was the best procedure to follow.

DR. FREEMAN: Dr. Lyerly, what do you mean by "improvement"? Does that take in only the subjective complaints of the patient or is it also the opinion of the family? Have you had any patients who are not improved or are real problems because of their destructive, irrational behavior following operation?

DR. LYERLY: By "improvement" I mean that the patients came out of the severe mentally depressed states and became happy, cheerful and slightly elevated. A few of the patients became too elated and had to be institutionalized. These I put in the failure group. Some of them were inclined to spend money that they did not have and for that reason I think they were not improved to the point that would be most pleasing to the family.

Probably the reason some of these patients developed too much of the elevated type of personality was that too much of the prefrontal lobe was disconnected from the rest of the brain. For that reason I have done some of the operations bilaterally but more anteriorly. In 4 cases I have done the operation only on one side with very good results and with a good gain in weight after the operation, but usually such an operation is not extensive enough.

DR. M. A. TARUMIANZ, Farnhurst, Del.: How soon after operation did you notice some improvement?

DR. LYERLY: Immediately after the operation. The patient frequently wakes up with a smile on his face or is happy and more elated, more relaxed. However, during the first few days or weeks he is in a confused state, with considerable impairment of memory and disorientation.

DR. TARUMIANZ: Is it your experience that forty-eight or seventy-two hours after the operation they show definite delusions of the former nature?

DR. LYERLY: Occasionally they may have a few of the old symptoms, but as a rule they do not. During the confused period they are usually more or less incontinent. They lie listlessly in bed. Sometimes they are inclined to pull the bedding off the bed or to get up and wander around the room. They frequently have to be restrained. They forget that they have been operated on. But within a week the memory returns and they do not recall anything that happened during that confused period. Their own usual type of personality then returns and persists. They usually are out of bed in about two weeks and frequently out of the hospital shortly thereafter.

DR. H. D. PALMER, Philadelphia: Were all of the 24 patients with involutional melancholia subjected either to metrazol or to electric shock therapy and had such therapies failed before this operation was attempted? I note a 60 per cent recovery rate in your involutional melancholia group following operation, whereas with metrazol therapy one can anticipate about a 73 per cent recovery rate in these cases and with electric shock about an 85 per cent recovery rate.

DR. LYERLY: Most of them have had either insulin or metrazol before operation, but not all. One patient had been in the hospital with a severe depression for over four years. The operation resulted in only a slight improvement. I think her severe symptoms had been of too long duration and I probably wouldn't operate on her today.

DR. TARUMIANZ: I don't agree with you, Dr. Lyerly, about duration. I have had cases of twelve years' duration and still the patients recovered after operation and went home.

DR. LYERLY: One patient was a rather old man with a severe agitated depression. All he would say was "Send me to the electric chair and get it over with." He was in constant motion.

DR. FREEMAN: His condition was too bad for shock therapy?

DR. LYERLY: I thought it was and regarded the operation as a less severe procedure. Following the operation he could have been discharged from the hospital, but he hasn't any home. He gained 91 pounds (41 Kg.).

DR. FREEMAN: My record is 130 pounds (59 Kg.) gained.

MODERATOR BUCY: Dr. Grinker, I should like to ask if you feel that these large gains in weight, such as 90 pounds and 130 pounds, can be attributed entirely to improvement in mental symptoms or are they possibly on a physiologic basis quite apart from the mental symptoms?

DR. GRINKER: I think there is a very strong possibility that those excessive gains in weight are due to some disturbance in the cerebral centers. Particularly one might imagine traction on the hypothalamus or bleeding in the neighborhood. It is the moderate gain in weight that is so characteristic of improvement in the anxiety states to which I had reference.

DR. FREEMAN: I had one experience in which the anterior cerebral artery was injured, resulting in softening on the mesial aspect of the left hemisphere. The patient ate very eagerly. In a period of four hours she consumed 4,600 calories and three quarters of a pound of chocolate candy before she vomited—and was immediately ready for more. I think that is definitely a type of morbid hunger such as is found in some cases of frontal lobe disease. However, in most instances I believe that these patients get so much more pleasure out of their bodies, out of the matter of eating, out of the process of bathing, and enjoyment in other fields too, that the gain in weight is merely an expression of their contentment with existence as it is. The girl who gained 130 pounds after operation had lost nearly 100 pounds beforehand. She had starved herself through the delusion that the food was being poisoned.

DR. LYERLY: One woman aged 59 had suffered from a severe depression for over a year and been treated

in various places before being committed to the state hospital. Following the operation she made a good recovery. Her husband had a stroke and became paralyzed on one side about two years after the operation. Since then she has gone to work and earned their living. She gained 36 pounds (16 Kg.).

One man had a severe traumatic neurosis, suffered from headaches and was addicted to alcohol. He said he drank because he was worried, depressed and afraid all the time. After the operation his headaches disappeared. He has not drunk any since the operation. He says he does not worry and therefore sees no need for drinking. This man has been working regularly since the operation. Before the operation he was out of work half the time.

Dr. Freeman: I operated on 2 alcoholic addicts and they both got drunk before they left the hospital.

Dr. Lyerly: I have done forty-four operations in all and there have been no deaths from the operation, there have been no complications such as paralysis, no aphasia, nor other signs of organic brain damage that could be demonstrated except for these mental changes. Three patients each had a slight convulsion after operation. One had a convulsion during a period of influenza with a temperature of 103 F. Another had a slight convulsion in a hypomanic rage. And another patient had a slight convulsion without any known cause.

EIGHT CASES OF INVOLUTIONAL MELANCHOLIA AND TWO OF SCHIZOPHRENIA

Dr. Tarumianz: About three and one-half years ago Dr. Francis Grant and I decided to present this particular type of more drastic approach to our board and obtain its sanction to proceed with such operations in a state hospital in Delaware. Thus we selected, with the help of Dr. Freeman, 10 cases. Eight of them were of the involutional melancholia type, and 2 of them were of the schizophrenia type with involutional changes. These patients had all been in the hospital for two or more years and some were psychotic for some time before being committed to the hospital. The youngest was 37 years of age, the oldest 66. They were all women with 1 exception. They were all much deteriorated. Most of them were at times extremely agitated and deeply depressed. Seven of the 10 had suicidal tendencies. Two of them had attempted to commit suicide on many occasions. One was quite emaciated because of her unwillingness to take nourishment. Of the 10, 2 have died. One died from postoperative hemorrhage four days after the operation. One died two years after the operation from cerebral hemorrhage. Seven returned home a few months after operation and became fully adjusted, with slight euphoria and very slight unreasonableness, perhaps due to lack of inhibition. One, not having a home, is still in the hospital doing very well. Of these 10 patients, 7 have become fully adjusted socially and mentally and 2 are working in their offices as they did before their illness. With such results one cannot help but consider prefrontal lobotomy as an adequate type of approach in chronic cases after all other types of conservative as well as semidrastic methods have been tried. However, I believe that metrazol treatment is more drastic than prefrontal lobotomy, even though I have never seen a death from metrazol in our hospital and we have seen one case of postoperative death from lobotomy.

From an economic point of view I should like to give some figures as to what this may mean to the public. We have come to the following conclusion with regard to our own cases: In our hospital there are 1,250 cases and of these about 180 would be suitable for such an operation. In our hospital these patients could be operated on for $250 per case. That will constitute a sum of $45,000 for 180 patients. Of these we will consider that 10 per cent, or 18, will die, and a minimum of 50 per cent of the remaining, or 81 patients, will become well enough to go home or to be discharged. The remaining 81 will be much better and more easily cared for in the hospital. Thus the hospital will be relieved of the care of 99 patients. That will mean a saving of $351,000 in a period of ten years. I believe that, these figures being for the small state of Delaware, you can visualize what this could mean in larger states and in the country as a whole.

Moderator Bucy: Dr. Tarumianz, in the light of Dr. Lyerly's experience, don't you think it more than likely that your figure of a 10 per cent mortality is unduly high?

Dr. Tarumianz: I fully agree with you and possibly in the next 25 we might not have a single death. However, we are taking the worst situation that might occur. So far I have not seen a single case that has not responded favorably except those in which death occurred. Two days before I left the hospital I saw 5 of the 7 who are at home and they are still well after three, two, and one and one-half years. About ten days ago Dr. Grant operated on 2 patients with schizophrenia. This is the first time that we have operated on dilapidated schizophrenic patients with long hospital duration after all the shock therapy failed to accomplish anything. One had been quite a problem in the hospital because of her very disturbed condition and her impulsive violence, at times even trying to commit homicide. About forty-eight hours after the operation this woman requested newspapers and magazines. The other 1, who had been mute during nine years of hospital residence, having a catatonic type of schizophrenia, requested a beautician to come and give her a manicure.

Moderator Bucy: Recently I have seen some patients diagnosed as suffering from dementia precox, individuals who were particularly agitated and difficult to handle, who were very filthy in their behavior and on whom this operation or some modification of it was performed. They have been transformed into much quieter, almost vegetative individuals. They are much cleaner; they are much easier to take care of. Have you had any experience with such cases and do you believe that the procedure in such a situation would be justified?

Dr. Tarumianz: I am not ready to answer your question because we took these 2 cases of schizophrenia just ten days ago and have hardly had sufficient time to answer your question.

Dr. Freeman: I think I can answer that question to some extent. The schizophrenic patients after operation look like patients with dementia precox and talk like them but they do not feel like them. They are no longer particularly interested in themselves and their hallucinations or delusions. The behavior of these patients often shows no particular change for some little time. There are three stages in the recovery: first,

the bleaching of the affect; second, the disappearance of ideas, hallucinations, delusions and so on, and finally the clearing up of motor manifestations.

DR. GRINKER: I wonder if we should worry too much about the economic costs and figures, for these patients are returned home and the cost is now borne by another agency, namely the home rather than the state, which in the long run makes very little difference.

DR. TARUMIANZ: I do not agree with Dr. Grinker, because those patients who have returned home have not become a burden to their families. The women have assumed the responsibilities of their housekeeping, while before the families had to hire housekeepers. Two of them have obtained their former jobs.

DR. GRINKER: I have a second question which I should like to ask Dr. Tarumianz. The amount of attention and interest in the long hospitalized, dilapidated schizophrenic patient is practically nil. Now you have a new operation and you are enthusiastic about it. You bring your patient into the hospital ward. You operate on him. You supply him with nurses. You pay a lot of attention to him. You have brought to bear on this patient a tremendous amount of psychologic care which he did not have before and you get some results. I should like to know how you can determine that it isn't the effect of your new psychologic interest in this patient and not the operation you perform.

DR. TARUMIANZ: We had that on our minds and our first patient had a private graduate nurse at all times prior to operation. She was taken to the occupational therapy department by her private nurse and she was taken to the library; yet she showed no signs of interest because of her agitation, depression and suicidal tendencies. I doubt very much that you are right in saying that we are going to show such a vast change in our treatment of patients who have had lobotomy. As a matter of fact, we do not have any time in which to give such treatment, as improvement occurs in twenty-four or forty-eight hours.

DR. FREEMAN: Also aren't your patients previously treated rather intensively, say, with either metrazol or insulin?

DR. TARUMIANZ: They have all been given all available treatment.

DR. FREEMAN: We have tested out the effect of both operative shock and suggestion in the recovery of these patients. Some patients have been operated on in two stages. The first operation has been done under local anesthesia with all of the ritual of the operating room, the caps, masks and gowns, the drilling of the skull and the operation itself but without relief. Yet the second operation on the other side has given relief.

REPORT OF FIVE CASES OF SCHIZOPHRENIA

DR. PALMER: In the use of the operation of frontal lobotomy at the Pennsylvania Hospital, we have preferred to work in the field of the hopelessly deteriorated patients who have failed to respond to every treatment over a period of years. Seventy per cent of all schizophrenic patients fail to respond to any method of treatment, whereas, as I said in commenting on Dr. Lyerly's material, the involutional melancholias show 70 to 73 per cent recovery with the metrazol treatment and about 85 per cent with electric shock treatment; therefore, in choosing this chronic schizophrenic group for study we were taking the most unlikely group. Dr. Edward A. Strecker, Dr. Francis C. Grant and I reported a study of frontal lobotomy in five cases of deteriorated schizophrenia before the American Psychiatric Association in May of this year and the material I should like to discuss here is an abbreviated form of that presentation.

There are 5 cases in our group, 4 women, 2 single, 1 divorced and 1 married, and 1 single man. The range in age is from 25 to 39 years. The shortest preoperative duration of psychosis was five years and the average was more than ten years. The briefest postoperative observation period was one year and the longest two and one-half years. The psychotic patterns were basically schizophrenic, but the group was distinguished by the fact that the psychotic life was not on a negative, passive level but tended to be strikingly violent, disturbed by vivid hallucinations, motivating apprehension, fear, anxiety, suicidal attempts, attempts at self mutilation, destructiveness, aggressive acts, homicidal attacks and assaultiveness of tremendous violence.

Partly in answer to Dr. Bucy's question about the application of this operation to the hopelessly schizophrenic, and partly to present the favorable results in what Dr. Freeman calls "the forgotten patient in the back wards," I would like to give the details of these cases. I also will bring out, in answer to the question raised by Dr. Grinker, the fact that these patients were not neglected before operation but were subjected to all kinds of helpful treatment, both psychologic and physical, over a period of many years.

The first patient was a woman aged 39, a divorcee, ill with schizophrenia for twelve years before operation, who had been under our observation for seven years. The postoperative period has been twenty-two months. The psychosis was characterized by excitability and impulsive violence, several suicidal attempts, refusal to eat, and very distressing auditory and tactile hallucinations. In fact, her distress was so great that she begged that both auditory nerves be cut to eliminate the abusing voices and that a mutilating sexual operation be done to remove the distress of tactile hallucinations involving the sex organs. Deterioration was obvious in that she had apparently had no intellectual life during the last seven years, whereas prior to the onset of her illness she had graduated from college, had a real interest in literature and was adept at languages.

She was given narcosis treatment in 1937 and failed to respond. Following that she was given insulin therapy, having fifty-one treatments with forty-two comas. There was a slight temporary improvement, but she relapsed so severely that insulin therapy was repeated after nine months. This time she was given forty insulin injections with twenty-three comas. No improvement followed this treatment. After seven months she was given eighteen metrazol convulsions and three azoman (3-ethyl-4-cyclohexyl-1,2,4-triazol) convulsions; no benefits were derived from these methods. Frontal lobotomy was performed by Dr. Francis C. Grant on June 20, 1939. The immediate result of the operation was a serene mental attitude with rather a remarkable talkativeness. After three months she was allowed to go home with a nurse, and since that time she has been living in a relatively satisfactory social adjustment, without the nurse, at home. She goes to the opera and the theater, rides horseback, has resumed her interest in languages and in literature and has learned painting and sculpture since the operation.

There is, however, a somewhat vague forgetfulness regarding unimportant things. She has a mildly distorted sense of time relationships. Her naive attitude toward temporal orientation is illustrated by the fact that although she has been sick for longer than thirteen years she believes that she has been ill for a year and is disturbed somewhat by the fact that she has been out of circulation for "twelve whole months."

She states that the operation was unnecessary because her illness was very mild; that doctors always make a great fuss about things anyway and they operated on her without justifiable cause. She has gained 40 pounds (18 Kg.). A severe hypotension, which existed prepsychotically as well as during the course of the psychosis, has been improved to the point where the blood pressure is now approximately normal. She at times shows a little tendency to make ridiculous jokes and to see the funny side of things in a slightly distorted fashion.

The second schizophrenic patient was a woman aged 26 who had been psychotic for twelve years before operation and had been observed by us for five years before operation. She has been seen for fifteen months postoperatively. Prolonged endocrine therapy, narcosis treatment and insulin therapy with forty or more periods of coma had brought about no improvement. The psychosis was characterized by enormous fear of kidnapping, violent assault, and so on. She became so alarmed that she set the house on fire on occasions, preferring to die in the blazing building than to be kidnapped and tortured. She attempted to jump out of windows. On occasion she smashed all the furniture in the house, attacked nurses with tremendous violence and was restrained with great difficulty.

Frontal lobotomy was performed by Dr. Grant in November 1939. The immediate results were very encouraging. The patient was talkative, pleasant, affable, cooperative in an extreme degree. Her appetite, which had been almost nil before the operation—in fact she had required artificial feeding—suddenly became exaggerated, and in the first six months postoperatively she gained 49 pounds (22 Kg.). She read books with her nurse, worked at arts and crafts, and manifested interest in her environment, going for rides and walks and enjoying relatively simple things. It was not felt that she approached her prepsychotic level of intellectual interest. An attack of very virulent pneumonia resulted in death eighteen months after the operation.

The third patient, a single man of 35 who had been under the observation of psychiatrists at the Pennsylvania Hospital for six years prior to operation and for one year after operation, had catatonic schizophrenia. His behavior was of the same assaultive, violent, impulsive, homicidal character. He attempted to mutilate himself. He burned his skin frequently with cigarets, beat his head against the wall, was incontinent and untidy.

Narcosis followed by typhoid vaccine, insulin treatment and sixteen metrazol convulsions all failed to bring about anything but a transient improvement. Operation April 25, 1940 by Dr. Grant produced a high degree of affability and cooperativeness, complete freedom from violent outbursts, and freedom from the aggressive assaultive attacks. The patient began to renew his interest in card games and checkers and in occupational therapy. During this postoperative year, however, he has remained on a relatively simple level. Although he goes home occasionally to have dinner with his family he is passive, extremely suggestible and accepts with entirely uncritical attitude the hospital management.

The fourth patient was a woman of 32 under observation because of her psychosis for thirteen years prior to operation and for fifteen months after operation. The onset of the illness was typical, with withdrawal and quiet preoccupation. Gradually there appeared hallucinations, which increased in acuteness and in their distressing nature until she became assaultive, violent, destructive and on one occasion attempted suicide by jumping out of the window. The restlessness was so intense that exhaustion seemed inevitable, and she was several times given narcosis as a means of controlling the agitation and excitement. In 1937 she was given insulin therapy and had forty-six treatments with thirty-four comas. She gained a great deal of weight during this treatment but showed no mental improvement whatever. She was given a second course of insulin therapy seven months later with no improvement.

She was operated on by Dr. Grant, Jan. 15, 1940. The immediate postoperative results were not very encouraging. She remained quiet, entirely passive, very suggestible. Her interest could be aroused for temporary periods, but she quickly lapsed back into what appeared to be preoccupation with fantasies and possibly with hallucinations. However, in the fifteen months since operation she has made very striking improvement. She has gained 45 pounds (20 Kg.), has lost her fatigability, seems more energized. She now goes swimming, bicycling, horseback riding, does very skilful weaving and knitting, and has taken up sculpture and painting, at which she was very competent in her prepsychotic life. She apparently has lost none of the skill which seemed to have disappeared entirely through schizophrenic deterioration. She has learned new games and has taught them to others. There are still, however, periods of preoccupation. She does not resent the intrusion of the doctor in the fantasy life, quickly comes back to reality and appears to have insight into the fact that she is drifting off into fantasy and that is not wholesome. The time sense of this patient is peculiarly distorted. She, like patient 2, is astonished to learn that she has been sick longer than a few weeks. In talking with the nurse she said that she might have been ill for one year. Actually it is more than fourteen years. She is interested in what has happened to her friends, how many of them have married and what they are all doing.

The anticipation of simple things is quite interesting. She wants an ice cream cone or she wants to go for a walk. She wants a dog. She wants to go riding in the car. The intellectual level seems relatively simple as far as her own initiation of interest is concerned, and yet when she is involved in a discussion of more adult things she is normally intellectual.

The fifth patient was a woman aged 25 who was under psychiatric observation for five years before the operation and for two and one-half years after the operation. There was a long history of educational and social maladjustments, years of moral laxness, rudeness, resentment, suspiciousness, obstinacy and irritability before the psychosis. Shortly after the onset of the psychotic phase she became paranoid and had ideas of reference, delusions and auditory hallucinations. There were episodes of violence and destructiveness. She attempted to commit suicide by setting fire to her clothing and by cutting her wrists.

Narcosis treatment of ten days' duration produced no improvement. Insulin therapy was given. She had fifty-one comas, but there was no benefit. Because of the tremendous difficulty in management, the increasing excitability and the destructiveness, frontal lobotomy was performed by Dr. Grant, Oct. 14, 1938. In the immediate postoperative phase this patient also showed little improvement. Gradually over a period of two and one-half years the improvement has become very substantial. She obtained a position one year after the operation as a hostess in a resort and functioned very satisfactorily. She learned to play golf and was able to enter into highly competitive golf games and come off reasonably well from the score standpoint.

One year ago she was married and since that time has gone through a normal pregnancy and delivery. She seems to have retained all of her intellectual capacity, and the comparison of psychometric tests before and after operation shows no change except that the Rorschach test shows a more normal response after the operation.

Summary of Results.—The 1 man improved only to the extent of being less violent and destructive. He has become a more conforming hospitalized, semi-convalescent patient. How much further the improvement will go it is impossible to say, because this is only at the end of one year. The gain of the 3 remaining patients still alive has been very considerable. Only 1 remains in a small private sanatorium in the country where she has horses and her own car and leads a relatively quiet country life, far removed from strict institutional life. One patient is able to live at home without a nurse and appears to her friends to have recovered entirely. The patient who is married seems to have made the best adjustment and perhaps we should call her recovered.

In our opinion at least one year should elapse after the operation before one attempts to judge the degree of improvement. With 3 of the patients there is a restored capacity to anticipate the future, to visualize it usually pleasurably, as in the matter, however, of relatively simple things, trips, cruises, rides, the acquisition of possessions, and so on. It is likely that auditory hallucinations continue in 3 cases, but there is less preoccupation and a rather remarkable ready distractibility, with evidence of insight. With 4 of the patients, and very striking with 2, there is a reclamation of former life material which permits some measure of reorientation with life and with family and friends.

In 3 introversion has been replaced to a striking degree of extraverted activity. There is a highly qualitative and almost wishfully selective distortion of time sense, and we would question whether that is psychogenic in part or whether it is all organically determined.

There are certain qualitative personality alterations which determine better social adaptability. For instance, with 2 patients a former disregard for others, selfishness and egocentricity have been replaced by generosity, thoughtfulness, kindness and consideration. Prepsychotic artistic capacities and an inclination toward intellectual interests, skill in games, both athletic and nonathletic, have been strikingly reclaimed.

From these studies and the studies described by others on this panel there seems to be a gradual shaping up of conclusions regarding frontal lobe functions. The loss of the self critical faculty, impairment of temporal orientation and curious interference with temporal perspective are most conspicuous in our cases. The mental complacency, self satisfaction, the release of energy which is expended in more extroverted activity, the reduction in social propriety—all these may indicate a more primitive, more simple level of adjustment.

The tremendous gain in weight has been of particular interest because the distribution of adiposity resembles that of pituitary dystrophy; also the abnormal appetite, which at times becomes a desperate hunger, resembles the clinical picture of hyperinsulinism. The possibility of interference by the operation with certain hypophysial connections, either directly or indirectly through the thalamus, must be considered. It is suggested that indications for the operation of frontal lobotomy be considered in relation to constellations of symptoms, that is, agitation, destructiveness, overactivity, restlessness and mental distress rather than in relation to any diagnostic label. A certain segment of the schizophrenic problem which proved to be impregnable to all other attempts at therapy might furnish good material for further study of this method.

THIRTY CASES OF FRONTAL LOBECTOMY

DR. THEODORE CHARLES ERICKSON, Montreal: I have been asked to discuss this problem in the light of my experiences with frontal lobectomy. In removals restricted to the prefrontal areas I have not observed any changes of course in the reflex activity, in the motor or the sensory system. I have, however, observed all the classic signs of frontal lobe disease, such as euphoria, tactlessness, inappropriate facetiousness and lack of self consciousness. Equally impressive, however, are those patients with complete frontal lobectomy who are indistinguishable from some apparently normal persons. The loss of one frontal lobe is compatible with a very superior intelligence as measured by the Stanford-Binet test, a relatively normal personality as measured by the Rorschach test, and even in 1 of our patients with satisfactory accomplishment in university and scientific school work.

What do these facts mean? They indicate that adequate tests of frontal lobe function are not yet in common clinical usage, although an impetus in this direction has been given by the work of Goldstein and others. On the other hand, the fact that some patients with absence of the frontal lobes cannot be distinguished from normal persons by the usual psychometric tests might almost make one assume that there are many so-called normal persons who do not employ their frontal lobes in everyday life. When one considers the difficulty encountered in demonstrating their function, one is not surprised that the frontal lobes have been called "biologic luxuries" and that an eminent evolutionist has spoken of them as parasitic growths.

A review of 30-odd cases of frontal lobectomy from the Montreal Neurological Institute has impressed me with the variety of intellectual accomplishments and with the diversity of personality changes which these patients may show. One scientific student, of very superior ability, from whom the left frontal, dominant lobe was completely removed back to the ventricle, four years after the operation had a perfect score on the Stanford-Binet with an intelligence quotient of 152, while other patients have had intelligence quotients somewhat below normal.

The personality picture as reflected in the Rorschach test has also shown a considerable variation notwithstanding the remarkable uniformity of personality limitation which characterizes the patient with extensive cerebral damage. There is the patient, for example, reported by Penfield and Hebb and by Harrower-Erickson who had a removal of both frontal lobes. Before operation he presented a behavior problem, irresponsible and childishly stubborn. Fifteen months after operation the Rorschach test was essentially normal and his family considered that he was 100 per cent improved. He passed as a normal member of his community.

DR. FREEMAN: Was he able to work?

DR. ERICKSON: He was doing light work around the village.

DR. FREEMAN: I mean employed. Has any patient with bifrontal lobectomy been employed? I have looked up about 8 patients, and none of them, as far as I know, have been able to secure employment.

DR. ERICKSON: I don't think this man has either. None of ours have as far as I know specifically. Some patients with unilateral frontal lobe removal exhibit a perfectly normal personality, while others have given evidence of anxiety, tension and maladjustment. It is evident that a large removal from one frontal lobe does not prevent the development of anxiety states in the presence of distressful situations. I should like to mention certain psychotic states which are associated with focal epileptogenic lesions, particularly in the posterior portion of the frontal region. One of these cases was reported by Slight and Cone in 1937. Following a head injury there were focal attacks beginning in the left side of the mouth. The attacks later became generalized. Following status epilepticus the patient was admitted to the hospital in a confused state with alternate spells of laughing and crying. He was suspicious and he thought he was being persecuted. He talked in response to voices, one of which was his dead mother's, and he had some retrograde amnesia. The mental change was similar in form to that of cases commonly diagnosed as schizophrenia. A right osteoplastic craniotomy was performed and two superficial meningocerebral scars were exposed. One cerebral scar was anterior to the motor gyrus where the face movements are represented. There was also another scar just posterior to the rolandic gyri. Both were excised, and subsequent to operation the patient's mental state has been normal and he has been free from seizures for more than six years. He is married and is earning a living. Similar psychotic states secondary to epileptic discharge, arising from the presence of small tumors or scars in the posterior frontal region, have been observed in 6 other cases.

MODERATOR BUCY: Is it safe to assume that the psychotic symptoms disappeared because the scar was removed rather than because part of the frontal lobe was destroyed in removing the scar or because the convulsions were abolished?

DR. ERICKSON: No, I do not think it is, though these psychotic states are quite different from the confused, stupid state of automatism commonly seen after severe epileptic seizures. It is possible that these states are due to a general cerebral disorder as a result of the severe epileptic seizures.

RATIONAL BASIS OF TREATMENT

DR. GRINKER: On both sides of this question there is obviously a great deal of preconception and emotional bias. I think that those who have taken up this procedure have been interested in physical therapy in psychiatry, which has been based largely on a partially expressed and somewhat unexpressed feeling that the psychoses have a definite organic basis. On the other hand, those who are opposed to the method have again an emotional attitude toward a mutilating operation that destroys brain tissue. As long as we realize that on both sides there is some bias, perhaps listeners may conclude for themselves which is fact and which is bias.

In the first place, one tries to find out what type of case is selected for this operation. The statement is categorically made that those cases that are untreatable by conservative methods are selected, and the question that naturally enters my mind is What are those conservative methods? Surely, by conservative methods one does not mean metrazol or electric shock.

We are dealing with a large number of patients who have been chosen from state hospital populations. There have been some private cases, it is true, but when one thinks of what conservative treatment means, of what actual, thoroughgoing psychologic study and treatment mean, it is difficult to imagine that the patients who come from state hospital populations are getting the benefit of that type of treatment.

Again I want to call attention to the short duration of the patients' illnesses, because in looking over the data I have previously expressed my surprise that patients have been operated on after only a few months of mental illness. It is obvious that even the natural process of recovery has not been allowed to take its effect.

In looking over the diagnoses of the cases that have been selected, one finds that operations have been performed on patients with psychoneurosis, manic-depressive psychoses, schizophrenic personality, and so on. It is obvious then that this operation is devised for almost the whole field of psychiatry; yet one very good sign is Dr. Freeman's and Dr. Palmer's insistence that we discuss this matter not from the point of view of diagnosis but from the main presenting symptom, which is anxiety or apprehension, and, as you know, anxiety is not limited to any one neurotic or psychotic condition. As a matter of fact, it is present in all; therefore indication for operation becomes a question of the degree of anxiety.

Another statement that is made is that these people should not be young, and yet in the statistics of cases presented we see patients operated on at the age of 30, 33, 35, and I trust these are still young people. In other words, the anxiety states are not limited to those with so-called involutional melancholia.

Without drawing any conclusion about this difficulty of obtaining proper data, may I discuss first the type of defect after the operation. I think all the members of the panel are agreed that there is some defect, and that a great deal of difficulty has been found in testing the defect. The defect cannot be easily tested by the ordinary formal tests of intelligence. Halstead has shown clearly that persons with high Binet and normal Rorschach tests may show disturbances in categorical behavior that indicate a very severe disturbance even in those who appear well adjusted in their previous environment. There must be developed a technic of

measuring very carefully both the existing function and the defect in the individual before and after the operation.

The question of defect of function of the frontal lobes has been dealt with largely by generalizations. We have heard about defects of association or of synthesis. We have heard about the disturbances of category behavior at the level of abstraction, but we see that such things as initiative, ambition, productivity, creativeness are not measured and sometimes hardly mentioned in the postoperative defect. It seems that what is most likely to confuse the issue is a spurious kind of normality, a kind of normality that may permit the patient to return to situations of responsibility, with disastrous results.

There is another question which cannot be answered here, and that is the result of late scarring. These people have had trauma not only to brain tissue but to blood vessels, and the scarring that results, whether of glial or of connective tissue, will take time to produce its effect. There are now beginning to appear reports of the late development of convulsions following metrazol, insulin and electric shock therapy. It is possible that similar convulsions may appear later following frontal lobotomy.

To explain the improvements, if one may call the total picture improved, is tempting. It was tempting in the problem of insulin therapy when one thought that insulin therapy was the great panacea for schizophrenia, but now that the percentage of remissions is steadily declining to the spontaneous rate one is a little abashed at having attempted explanations. I do not believe that the effect of this operation is purely psychologic. The effect, if it were psychologic, could not last, since any effect on the psychotic individual would soon be overcome by the process of further living.

The second possibility is some general catastrophic reaction, some biologic reorganization which had nothing to do with the actual location of the operation. That has been amply disproved particularly by Dr. Freeman, who has pointed out that the effect is dependent on the quantity and the localization of the tissue cut.

The third possibility is the one that I think all have been agreed on, namely that there are some functions in which the prefrontal lobes are concerned that have to do with the development of anxiety.

I think that we are confronted in considering prefrontal lobotomy with a choice. The choice is the symptom of anxiety versus the postoperative defects and sequelae. Some of those sequelae are a lack of spontaneity, a loss of interest, of thoughtlessness, the loss of initiative and judgment, and some degree of euphoria.

I think all of us recognize that man's position in the animal kingdom is one of greatest domesticity. We have dealt with our fundamental instinctual trends with the greatest severity concomitant with what can be called civilization, which has been developed at a cost to every person of psychologic conflict. It is conflict between instinctual animal tendencies versus the social, economic and environmental prohibitory forces. This conflict manifests itself by anxiety which is universal. It is pathologic only in its degree, for we all have anxieties and all of us suffer. Sometimes the apparent suffering is not as great as indicated, and the evaluation of that suffering by an observer must be an extremely cautious affair. Sometimes the so-called suffering is actually pleasurable, as in the so-called masochistic state. The possibility of this anxiety obtaining a certain pathologic threshold and becoming abnormal we all recognize. On the other hand, a certain quantity of anxiety is frequently the stimulus for a tremendous amount of productive and creative work, and when we think of some of the great men and women in our civilization we realize that their forceful drive to work was based on a great deal of anxiety.

It is obvious that if the anxiety and suffering, the things which one wants to relieve, are based on conflict, the rational basis of treatment is a psychologic therapy. This cannot always be done. It is sometimes very tedious and very costly, but if it were possible we would not hesitate to ask for more psychologic work in state hospitals rather than more operating rooms.

I think it is an extremely dangerous thing for man to assume that he is capable of judging quantity of anxiety and quantity of suffering, that he can tell exactly what dose of anxiety is normal and what is pathologic, and on that basis perform a mutilating brain operation. I think that the problem is much more dangerous with prefrontal lobotomy than with milder forms of therapy such as electric or metrazol shock, because after those forms of treatment the amount of recovery is considerable. But, once one cuts, there is no return. It is not possible to cut certain fiber pathways which function in the expression of certain individual conflicts. There is no such thing as microsurgery; it is an extremely macrosurgical procedure.

If we feel that the most rational therapy is a diminution of the severity of the conflict by psychologic methods, then by all means these must be tried first and thoroughly. I do not believe that the surgeon can assume the responsibility of being the operator at the behest of his neurologic and psychiatric friends and say "I did it because they told me to." He must assume the responsibility of insisting that before such operations are done all conservative means—and by "conservative means" I mean thorough going psychologic treatment—have been employed.

I think there is no question that this operation has a usefulness; but the delimitations of its usefulness have not been clarified. Older patients, perhaps people who have no chance whatever except to continue in state hospitals, are those on whom further experiments, since I think this is still an experiment, should be made. I perhaps may disappoint some, as I am not iconoclastic about this operation. I see its value. I think that perhaps something may come of it, but I do not think this is the time to disseminate it widely to the profession or to the public until we have learned much more of its limitations. I think its discussion should be limited to the specialists in the field.

DISCUSSION OF QUESTIONS

MODERATOR BUCY: Dr. Freeman, Dr. J. M. Nielsen of Los Angeles asks whether you have checked for such reflexes as Oppenheim's, Gordon's or Rossolimo's after this operation and, if so, what you have found, and also what about forced or reflex grasping.

DR. FREEMAN: These abnormal reflexes have been observed maybe a dozen times in the first forty-eight hours after operation. There have been 2 cases of hemiplegia, 1 with very definite reflex grasping, apparently caused by thrombosis or rupture of the anterior cerebral artery. This persisted to the end.

The most common neurologic signs after operation are masking of face, plateau speech and incontinence of the bladder.

MODERATOR BUCY: Dr. Palmer, Dr. A. E. Bennett of Omaha asks "A schizophrenic paranoid type, three years in the state hospital, had a partial remission after insulin shock for a short period of time and then relapsed. Might such a patient became a paroled patient following lobotomy?"

DR. PALMER: I think, provided the deterioration has been a fixed thing over a period of years and the response to energetic insulin therapy has been nil, it might be worth while to consider a prefrontal lobotomy. I should stress the importance of a reeducational phase following lobotomy. Certainly, the disruption of certain long-established habits by the cutting of association pathways calls for an effort to reeducate and to establish new patterns of behavior, since in the immediate postoperative phase the individual is very malleable and suggestible.

MODERATOR BUCY: Dr. Lyerly, Dr. John F. Fulton of New Haven, Conn., asks "Have there been any temporary or persistent changes in systolic blood pressure or any other circulatory changes after these operations?"

DR. LYERLY: One patient who had a severe involutional melancholia had a systolic blood pressure of around 200 before operation. With barbiturates, before operation, it could not be lowered below 160. After the operation it fell to 130 and has remained there since. There is no material change in blood pressure if the person had a normal blood pressure before operation.

DR. FREEMAN: If the blood pressure is normal before operation, it is likely to remain so during and after operation. We have followed 3 cases with hypertension of 190 to 240, and the blood pressure is now lower than it was four years ago.

MODERATOR BUCY: What would you say, Dr. Tarumianz, is the age limit? I presume he means the upper age limit.

DR. TARUMIANZ: The oldest patient operated on in our hospital was 66 years of age, and I believe that up to 70 should be considered.

MODERATOR BUCY: Dr. Tarumianz, Dr. Nichols asks "What happens to sexual behavior after frontal lobotomy?"

DR. TARUMIANZ: In our cases those who have been operated on have resumed normal sexual relationships.

MODERATOR BUCY: Dr. Freeman, Dr. Johnston asks "What insight do these patients who have been operated on show toward their former delusions, hallucinations, and so on?

DR. FREEMAN: I think these patients do not recognize the nature of the delusions and the hallucinations. As I stated before, they lose the affective response to these, while the delusions continue of their own momentum for a while and then die out.

MODERATOR BUCY: Dr. Ralph B. Cloward of Honolulu asks "Has Dr. Freeman or Dr. Lyerly seen or studied gastrointestinal activity by fluoroscopy following the operation? Have stool examinations for blood been done to determine the possibility of erosions or ulcers?

DR. FREEMAN: During the period of the operation the patient goes through the first side without any comment. Quite often with the first cut on the opposite side there is borborygmus and apparently reverse peristalsis with retching. Vomiting is continued at intervals for twenty-four or forty-eight hours, after which the symptoms subside. I think that among our patients there were some 30-odd who complained of indigestion before operation and not one of them had indigestion afterward.

DR. LYERLY: I have had some barium sulfate meals given patients before and after operation to test the motility of the stomach. In the few cases in which I have done this the motility of the stomach was essentially the same after operation as before. Some patients said that they had to be careful of what they ate before operation, and after operation they could eat anything and were hungry all the time. Constipation disappeared, and nausea and vomiting disappeared.

MODERATOR BUCY: Dr. Freeman, is it customary to use the instrument devised by Moniz or, if not, what type of instrument is now in use?

DR. FREEMAN: The Moniz instrument is ineffective and not particularly desirable because it leaves damaged tissue in place. At the present time we are using the Killian periosteal elevator to make a clean incision through the white matter of the frontal lobe.

MODERATOR BUCY: Is there any evidence that lobotomy might offer relief of postencephalitic behavior disturbances in children?

DR. FREEMAN: Rizzatti reported 5 or 7 cases of chronic encephalitic behavior disturbances, in 4 of which relief was obtained. I have had no experience.

MODERATOR BUCY: Have any of you had any experience with dextrose tolerance tests following lobotomy?

DR. FREEMAN: The test was unchanged in 1 case.

MODERATOR BUCY: Dr. Palmer, "Why isn't the effect of the operation as a shock the effective element?"

DR. PALMER: I would agree with Dr. Freeman and most of the others that the improvement is due entirely to the organic changes and the resulting alterations in function produced by the operation. The shock of unilateral lobotomy is almost as great as in the bilateral operation, and yet it has been repeatedly shown that unilateral lobotomy produces no change in behavior or in subjective feeling. I do not believe that the operation has any effect whatever as psychotherapy. All attempts at psychotherapy, including psychoanalytic procedures, reeducation, prolonged sanatorium care, suggestion, occupational therapy—every form of psychotherapy has been attempted over a period of many years in these patients without benefit. If they were to derive improvement from psychologic therapy associated with the shock of operation they would have obtained it from that which is inherent in metrazol therapy and in the solicitous care which goes along with insulin treatment.

DR. GRINKER: You are speaking now of your 5 schizophrenic patients?

DR. PALMER: Yes.

DR. GRINKER: That is quite a little different matter from the depressions that Dr. Freeman is talking about.

DR. PALMER: Dr. Grinker feels that many of the patients subjected to frontal lobotomy have not received

adequate or sufficiently deep psychotherapy. I should like to ask Dr. Grinker if he would tell us what success can be anticipated with psychotherapy in involutional melancholia and in the institutionalized schizophrenic patients.

DR. GRINKER: The question of percentage of success with psychotherapy is something that I cannot answer. It depends on the type of patient. It depends on the psychotherapist. It depends on a great many factors. What I have reference to is simply this: I feel that in many of these cases the psychotherapy has not been adequate. I recognize that there are cases in which no psychotherapy will help and one is forced to this or other radical procedures but always with a recognition of the extent of corollary defect. However, I am anxious about the future care of many of these patients, not especially those state hospital patients or institutionalized patients, but the general group of people with psychoses and psychoneuroses who will, if we are not very careful, be mutilated by this operation indiscriminately applied.

DR. TARUMIANZ: May I just say that I fully agree with Dr. Grinker. We must be careful with so radical a method. We should not consider any case for such an operation unless all necessary care and treatment have been given for at least two or more years.

DR. FREEMAN: I question, however, whether every patient before a prefrontal lobotomy should have the drastic treatment of metrazol, electric or insulin shock. I should like to ask Dr. Palmer in this connection whether he has also noticed that in the patients who recover after metrazol therapy and after electric shock therapy there is possibly the same temporal disorganization as following prefrontal lobotomy. I have seen patients who long after the shock therapy have said they couldn't remember time relationships, even though they had recovered substantially in other ways.

DR. TARUMIANZ: We have experienced that with our shock cases.

DR. PALMER: Yes, there is considerable disturbance of temporal orientation, there are even transient aphasia and transient amnesia following electric shock and following metrazol. These, however, have been of short duration, usually forty-eight hours, although in a man of 73 treated with electric shock the period of amnesia lasted for nearly three weeks. However, they have all experienced a restoration of the function of temporal orientation.

DR. FREEMAN: There is one other thing with regard to shock therapy. In a series of some 100 or 120 cases discharged from the hospital after shock therapy and followed over a period of six months to three years I have had 6 cases of suicide. After shock therapy a good many of these patients hate to come back for further shock treatment and some of them will take the quick way out rather than face that possibility. This fact, in addition to the other defects, the disasters, the fractured spines and spontaneous convulsions that occur following shock therapy, I think should make us a little cautious about saying "Well, we ought to try shock therapy first." Actually considerable damage can be done to the brain by shock therapy and we see that particularly following the prolonged comas produced with insulin.

GLANDULAR PHYSIOLOGY AND THERAPY

THE PARATHYROIDS—PHYSIOLOGY AND THERAPEUTICS

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NORMAL AND PATHOLOGIC PHYSIOLOGY OF PARATHYROID GLANDS

The parathyroid hormone has a marked influence on the metabolism of calcium and phosphorus. Its primary action, in my opinion, for reasons which cannot be gone into, is on phosphorus metabolism, and the changes in the metabolism of calcium are dependent on the preceding changes in the metabolism of phosphorus.[1]

Calcium Metabolism.—The metabolism of calcium is considerably simpler than that of phosphorus. Over 99 per cent of the body's calcium is in the form of a calcium phosphate-calcium carbonate compound which is deposited in the organic matrix of bone and teeth. In addition, there are small amounts of calcium in body fluids. The calcium in the blood except for a negligible part is in two forms, calcium ions and calcium proteinate.[2] The parathyroid hormone apparently regulates the level of calcium ions. There is considerable circumstantial evidence that the stimulus for the parathyroid glands to produce more hormone is a serum calcium ion level below normal. Even when calcium is absent from the diet, a considerable amount is excreted in the urine, since the normal serum calcium value (10.5 mg. ± 1 mg. per hundred cubic centimeters) is above the threshold (circa 7 mg.) for calcium excretion. Calcium is also excreted in the feces. There is evidence that fecal calcium represents not only calcium which has not been absorbed by the gastrointestinal tract but calcium which has been excreted into the gastrointestinal tract.[3] The latter portion, however, is of small quantitative significance except in hyperthyroidism.[3] Two other routes of calcium loss from the body are the lactating breast and the placenta. Since the amount of calcium which can be held in the body fluids is small and quite constant, it follows that if the calcium intake is greater than the calcium output the balance must for the most part be represented by the calcium deposited in bones or possibly in teeth. The converse must be true if the patient is in negative calcium balance.

Under normal conditions both calcium deposition and calcium absorption from bone are going on at all times. One process, to be sure, may be greater than the other, depending on the calcium balance as a whole. There is no such metaplasia of tissue in the teeth. It may be that there is a very slight interchange of calcium in the adult tooth, but, in my opinion, for all practical purposes this may be disregarded. When the tooth is being laid down there can be acalcification (i. e., absence of calcification) if the calcium metabolism in the body is faulty; once the tooth is formed, however, there is no decalcification. If tooth decay occurs during pregnancy, and it apparently does, the mechanism is not mobilization of calcium from the tooth to the blood stream, to the placenta, to the child.

1. Albright, Fuller, and Ellsworth, R.: Studies on the Physiology of the Parathyroid Glands: I. Calcium and Phosphorus Studies on a Case of Idiopathic Hypoparathyroidism, J. Clin. Investigation **7**: 183 (June) 1929.

2. McLean, F. C., and Hastings, A. B.: Clinical Estimation and Significance of Calcium-Ion Concentration in the Blood, Am. J. M. Sc. **189**: 601 (May) 1935.

3. Aub, J. C.; Bauer, Walter, C., and Ropes, M.: Studies of Calcium and Phosphorus Metabolism: III. The Effects of the Thyroid Hormone and Thyroid Disease, J. Clin. Investigation **7**: 97 (April) 1929.

Phosphorus Metabolism.—Phosphorus, likewise, is found in large amounts in bones and teeth (calcium to phosphorus ratio, approximately 2 to 1), and in smaller amounts in body fluids. In the serum one is here concerned chiefly with phosphorus in the form of inorganic phosphate. It is customary to speak of this as "serum phosphorus" rather than to use the more clumsy expression "serum phosphorus as phosphate." The normal level for adults is 3.5 mg. plus or minus 0.5 mg. It is higher in children. There are, in addition, in the body many organic phosphate compounds, such as phosphoprotein, phospholipids and various phosphate esters, which liberate phosphate ions on hydrolysis. Thus, a positive phosphorus balance does not necessarily mean that phosphates are entering the bones.

Relation of Calcium Metabolism to Phosphorus Metabolism in Disease of the Parathyroids.—If one stops substitution therapy with parathyroid extract in a parathyroidectomized patient, four cardinal metabolic changes occur. There is first an immediate decrease in the phosphorus excreted in the urine; second, the serum phosphorus level rises; almost simultaneously the serum calcium level falls; finally, with the fall in serum calcium there is diminished excretion of calcium in the urine.[1] If one administers parathyroid extract to a normal person these same four metabolic functions are altered in the opposite directions; i. e., one obtains hyperphosphaturia, hypophosphatemia, hypercalcemia and hypercalciuria. There are two schools of thought as to the mechanism by which these four cardinal metabolic effects are mediated. One school holds that the hormone acts on bone tissue (notably osteoclasts) and tends to dissolve or otherwise remove calcium phosphate deposits from the bone.[4] Such a theory might explain the hypercalcemia, hypercalciuria, and hyperphosphaturia; it does not explain the hypophosphatemia unless one hypothesizes some secondary adjustment. The theory to which I adhere is based on the hypothesis that the hormone affects phosphates in the circulating body fluids in such a way that their excretion in the urine is increased. This would explain the immediate hyperphosphaturia on administration of parathyroid extract and the resulting hypophosphatemia. Furthermore, because of the lowered level of serum phosphorus, it is contended that the serum would be less saturated with respect to calcium phosphate and there would be an increased tendency for calcium phosphate to enter the serum from the gastrointestinal tract or from the bone. This would lead to hypercalcemia, and finally the hypercalcemia would lead to hypercalciuria. It will be impossible to discuss the pros and cons of these two opposite and still unproved theories in the present article.

HYPOPARATHYROIDISM

Causes.—A decrease in the number of, or absence of, the parathyroid glands is most commonly due to accidental removal of some or all of these organs during thyroidectomy. Very rarely, the condition occurs idiopathically. Just why all four glands should disappear idiopathically is of considerable academic interest. In an autopsy in such a case all four glands were found to be present and grossly to have a normal appearance. However, histologic sections showed that the epithelial cells had been entirely replaced by fat cells.[5] An intermediate stage in which the epithelial elements were much diminished and replaced by fat tissue has been described in a patient suffering from anterior pituitary deficiency.[6] In hypopituitarism, however, one does not find clinical evidence of hypoparathyroidism, and I do not believe that idiopathic hypoparathyroidism is due to lack of some hormone from the anterior lobe of the pituitary. There is considerable evidence that the parathyroid may be functionally deficient shortly after birth and that convulsions in an infant may be a manifestation of hypoparathyroidism.[7] Of academic interest is a case recently reported of hypoparathyroidism in a child born of a mother with hyperparathyroidism.[8] This suggests that the infant's parathyroids became compensatorily hypoplastic in intrauterine life.

Pathologic Physiology.—The most important chemical findings are the low level of serum calcium and the high level of serum phosphorus. In aparathyroidism the serum calcium may be as low as 5.0 mg. and the serum phosphorus as high as 12.0 mg. per hundred cubic centimeters. There should be no calcium excreted in the urine except in the very mild forms, as the serum calcium should be below the threshold for excretion of calcium (see earlier comment on this). The phosphorus excreted in the urine is often within normal limits. One expects hypophosphaturia only when the patient is adjusting from one degree to a lesser degree of parathyroid function.

Symptoms.—The most striking clinical feature of hypoparathyroidism is the increase in neuromuscular excitability dependent on the hypocalcemia, producing the symptom complex known as tetany. This phase of the subject is so well covered in all the textbooks that it will be mentioned only in passing here. The features of tetany are: carpopedal spasm, positive Chvostek, Trousseau and Erb's signs, laryngeal spasm and epileptic seizures, especially if the condition has been present a long time or if it occurs in very young children. Cataracts are present in almost all cases of long-standing duration, although it may take a slit lamp examination to find them. In many cases, however, they are sufficiently severe that their removal is required. Calcification of brain tissue is not an infrequent finding.[9] I have seen this in a case in which no symptoms referable to the central nervous system had been observed and in a case in which there had been epileptic seizures. When hypoparathyroidism develops before the teeth have entirely formed, one finds aplasia or hypoplasia of the teeth from that point in their development at which the hypoparathyroidism came in.[10] Thus, if the disease develops in a child at about the twelfth year of age, the teeth will be entirely normal except for blunting of the root ends of the cuspids, premolars and second molars and hypoplasia of the crowns of the third molars. Those are the last parts of the teeth to form. Changes of the nails and hair have been described,[11] but they are not present in all cases and their significance remains obscure. The bones in hypoparathyroidism are definitely more dense than normal, which is of considerable academic but of no clinical importance.[11]

Differential Diagnosis.—Other conditions which cause tetany may be confused with hypoparathyroidism. For all practical purposes one may consider that there are two causes of tetany: hypocalcemia and alkalosis. As far as I am aware, there is no evidence that the tetany caused by alkalosis is due to some secondary change in the availability of calcium ions.

The nonparathyroid causes for hypocalcemia are rickets or its adult form osteomalacia, steatorrhea, and

4. Thomson, D. L., and Collip, J. B.: The Parathyroid Glands, Physiol. Rev. **12**: 309 (July) 1932. Jaffe, H. L.: Hyperparathyroidism (Recklinghausen's Disease of Bone), Arch. Path. **16**: 63 (July) 1933.
5. Drake, T. G.; Albright, Fuller; Bauer, Walter, and Castleman, Benjamin: Chronic Idiopathic Hypoparathyroidism: Report of Six Cases with Autopsy Findings in One, Ann. Int. Med. **12**: 1751 (May) 1939.
6. Castleman, Benjamin, and Hertz, Saul: Pituitary Fibrosis with Myxedema, Arch. Path. **27**: 69 (Jan.) 1939.
7. Bakwin, Harry: Tetany in Newborn Infants: Relation to Physiologic Hypoparathyroidism, J. Pediat. **14**: 1 (Jan.) 1939.
8. Friderischsen, C.: Therapy in a Suckling with Latent Osteitis Fibrosa in the Mother, Lancet **1**: 85 (Jan. 14) 1939.
9. Eaton, L. M., and Haines, S. F.: Symmetrical Cerebral Calcification Associated with Parathyroid Insufficiency, Proc. Staff Meet., Mayo Clin. **14**: 48 (Jan. 18) 1939.
10. Albright, Fuller, and Strock, M. S.: Association of Acalcification of Dentine with Hypoparathyroidism in Rats and the Cure of Same with Parathormone, with Some Correlated Observations in Man, J. Clin. Investigation **12**: 974 (Sept.) 1933.
11. Howard, J. E.: Idiopathic Hypoparathyroidism, Ann. Int. Med., to be published.

renal insufficiency with phosphate retention. In rickets or osteomalacia the low value for serum calcium is characteristically coupled with a low, or in some instances normal, value for serum phosphorus. High values for serum phosphorus are most unusual. The serum phosphatase level, which is always normal or even low in hypoparathyroidism, is high in both rickets and osteomalacia. Steatorrhea, of which sprue is an example, probably leads to hypocalcemia, because vitamin D, being fat soluble, is dissolved in the unabsorbed fat; hence the condition results in hypovitaminosis D; the chemical findings in the blood are therefore those of osteomalacia. In addition, one may find evidence of a lack of other fat-soluble vitamins, notably vitamin K (hemorrhagic diathesis) and vitamin A (night blindness, keratosis pilaris).[12]

In renal insufficiency one finds phosphorus retention with a compensatory lowering of the serum calcium level. There is, however, in renal insufficiency as compared with hypoparathyroidism a lesser degree of hypocalcemia for the same degree of hyperphosphatemia. The probable reason why the serum can hold more calcium in proportion to the phosphorus in renal insufficiency is that there is almost invariably an associated acidosis. Furthermore, one seldom meets tetany in renal insufficiency with hypocalcemia because of the associated acidosis, which inhibits tetany. If one controls the acidosis, tetany may develop.

The commonest cause of tetany due to alkalosis is hyperventilation, usually due to some emotional disturbance. The diagnosis, though often missed, is very simple. The respirations are often quite deep but not so strikingly rapid; there may be a past history of similar attacks under emotional stress; the condition responds quickly to holding the breath or rebreathing in a paper bag; the urine, characteristically, is alkaline and contains normal amounts of calcium. The presence of calcium in the urine can be quickly verified by the aid of the Sulkowitch solution, which will be discussed under "Treatment." In hyperventilation the carbon dioxide–combining power of the serum may be only slightly reduced. The most significant change in the blood is a lowering of the carbon dioxide content of the arterial blood.[13] A less common form of the tetany due to alkalosis is that following ingestion of large amounts of an alkali, in which one encounters an alkaline urine, calcium in the urine, high carbon dioxide–combining power of the serum and possibly a high value for serum total base. In alkalosis due to excessive loss of gastric contents, one again encounters an alkaline urine, calcium in the urine and an increased carbon dioxide–combining power of the serum, also a marked lowering of the serum chloride value.

Treatment.[14]—The tetany in the symptom complex of hypoparathyroidism is due to the low level of the calcium of the serum. The goal is to raise the level of calcium to normal without overdoing this and obtaining hypercalcemia. Thus, all that is needed is an agent to raise the serum calcium level readily to any desired degree and a simple method of gaging this level. Dihydrotachysterol fills the first need and the Sulkowitch test for calcium in the urine the second.

Dihydrotachysterol,[15] like vitamin D, is a photochemical derivative of ergosterol. It was developed by Holtz in Berlin [16] for the treatment of hypoparathyroidism. One can easily raise the calcium of the blood to any desired or even undesired level with this substance. Its mode of action is beyond the scope of this article.[17]

The Sulkowitch reagent [18] is a solution containing oxalate radicals buffered at such a p_H that when an equal amount of the reagent is added to urine, the calcium will almost immediately come down as a fine white precipitate of calcium oxalate. If there is no precipitation there is no calcium, and the serum calcium level is probably from 5 to 7.5 mg. per hundred cubic centimeters. If there is a fine white cloud, there is a moderate amount of calcium, and the level of calcium in the serum is in the satisfactory range. If the precipitate looks like milk, the danger of hypercalcemia is present.

Once the diagnosis of parathyroid tetany has been made, dihydrotachysterol is administered until tests of the urine show moderate amounts of calcium. If large amounts of calcium appear in the urine, the dose is reduced and the danger of hypercalcemia is avoided. The patient makes his own tests and modifies the dose according to the results. I usually prescribe about 3 cc. of a dihydrotachysterol preparation a day until calcium appears in the urine; then the dose is dropped to a maintenance level—about 1 cc. three to five times a week.

This discussion has been slightly oversimplified. There are a few "ifs" and "buts" that must be added. Occasionally, a normal person who happens to be on a diet very low in calcium will show in a single specimen of urine practically no calcium. Almost any normal person shortly after drinking a large amount of milk will show an excess of calcium in the urine. Since one keeps patients with hypoparathyroidism on a diet high in calcium, one would expect them always to show hypercalciuria if their levels of serum calcium are normal. It thus turns out that if the dose is reduced when a large amount of calcium appears in the urine the blood calcium will be kept at a slightly subnormal level. This is probably all the better, since it further guards against hypercalcemia and since slight hypocalcemia is not deleterious.

A large number of measures other than the administration of dihydrotachysterol may be useful in the treatment of hypoparathyroidism.[19] To be sure, treatment with this drug is so satisfactory that one may be disinclined to bother with the other measures. A few of the salient points will be mentioned. There should be a high intake of calcium and a low intake of phosphorus. Milk, though high in calcium, is contraindicated because it is likewise high in phosphorus. The dietary conditions are sufficiently met if the patient omits milk as a beverage from the diet and takes a teaspoon of calcium gluconate or of calcium lactate dissolved in water three times a day. Just as alkalosis causes tetany, so acidosis tends to alleviate

12. Albright, Fuller, and Stewart, J. D.: Hypovitaminosis of All Fat-Soluble Vitamins Due to Steatorrhea: Report of a Case, New England J. Med. **223:** 239 (Aug. 15) 1940.

13. Talbott, J. H.; Cobb, Stanley, Coombs, F. S.; Cohen, M. E., and Consolazio, W. V.: Acid-Base Balance of the Blood in a Patient with Hysterical Hyperventilation, Arch. Neurol. & Psychiat. **39:** 973 (May) 1938.

14. Albright, Fuller: Note on the Management of Hypoparathyroidism with Dihydrotachysterol, J. A. M. A. **112:** 2592 (June 24) 1939.

15. Dihydrotachysterol is distributed in the United States by the department of medical research of the Winthrop Chemical Company, Inc. It is marketed in an oily solution, each cubic centimeter containing 5 mg. of dihydrotachysterol. The preparation is administered by mouth.

16. Holtz, F.: Die Behandlung der postoperativen Tetanie, Arch. f. klin. Chir. **177:** 32, 1933.

17. Albright, Fuller; Bloomberg, Esther; Drake, T. G., and Sulkowitch, H. W.: A Comparison of the Effects of A. T. 10 (Dihydrotachysterol) and Vitamin D on the Calcium and Phosphorus Metabolism in Hypoparathyroidism, J. Clin. Investigation **17:** 317 (May) 1938.

18. Two and five-tenths grams of oxalic acid, 2.5 Gm. of ammonium oxalate and 5 cc. of glacial acetic acid are dissolved in distilled water and made up to a volume of 150 cc.

19. Ellsworth, Read: Diagnosis and Treatment of Parathyroid Underfunction, Internat. Clin. **3:** 27 (Sept.) 1933.

tetany. It is therefore helpful in some instances to make the patient slightly acidotic. Calcium chloride by mouth produces slight acidosis, since more chloride is absorbed than calcium. A favorite prescription in the past has been 10 cc. of a 30 per cent solution of calcium chloride diluted in water and taken three times daily after meals. Such a prescription produces slight acidosis and insures a high intake of calcium at the same time. It has been shown that thyroxin tends to raise the serum calcium level in hypoparathyroidism.[20] Since many patients with postoperative hypoparathyroidism are at the same time suffering from a slight thyroid lack, it is often wise to administer thyroid to the limit of tolerance. Although parathyroid extract has played a large part in the history of parathyroidology, it is not used routinely in the therapy of hypoparathyroidism. The drawbacks are that it is expensive, that it often causes a local reaction and that its effectiveness wears out, apparently because of the formation of an antibody.

In an acute emergency 10 cc. of calcium gluconate can be administered intravenously. It must be emphasized, however, that whereas the symptoms of tetany may be terrifying, the condition is seldom fatal. Laryngeal spasm is the one most dangerous manifestation.

If the blood calcium is kept normal in hypoparathyroidism, cataracts do not develop. Those, once formed, however, do not regress. The cause of the cataracts is apparently the hypocalcemia. Cataracts also occur in hypocalcemia without hypoparathyroidism (e. g., sprue).

PRIMARY HYPERPARATHYROIDISM

By "primary hyperparathyroidism" is meant a condition in which more parathyroid hormone is produced than is needed. By "secondary hyperparathyroidism" is meant a condition in which more parathyroid hormone is produced than is normal but this excess is needed for some compensatory purpose.

Causes.—Hyperparathyroidism may be due to a single adenoma of one of the four glands, to multiple adenomas or to hypertrophy of all the parathyroid tissue. In the first 50 cases of hyperparathyroidism proved to be such by operation or autopsy, at the Massachusetts General Hospital, the disease was due in 41 cases to a single adenoma, in 3 cases to two adenomas and in 6 cases to hypertrophy. By hypertrophy is meant a condition in which the amount of parathyroid tissue is about forty to one hundred times the normal. The histologic appearance of the tissue is entirely dissimilar from that seen in any other form of parathyroid disease.[21] The individual cells have about five times the radius or about one hundred and twenty-five times the volume of a normal cell ($V = 4/3\pi r^3 = 4/3\pi \times 5 \times 5 \times 5 = 4/3\pi \times 125$). The histologic appearance is not in the least suggestive of hyperplasia, in which one finds cells of almost normal radius. The cause of hypertrophy of parathyroid tissue remains entirely obscure.

Pathologic Physiology and Diagnostic Considerations.—As in other conditions of overactivity of an endocrine gland, in hyperparathyroidism one can observe every degree of the disease. The slighter the degree the less abnormal will be the chemical findings in the blood. It so happens that a very mild manifestation of the disease may lead to a fatal issue, hence it becomes important to recognize the mild forms. The serum calcium level is characteristically high (up to 18 mg. when the condition becomes severe) but may be within normal limits in the milder forms of the disease.[22] It is important that the determination of serum protein be done in conjunction with that of serum calcium, since a normal level of serum calcium in the presence of a low level of serum protein is really abnormal. Of the two fractions of serum calcium, calcium ions and calcium as proteinate, it is the former which is primarily high in hyperparathyroidism; if the serum protein should be low, owing to some complicating condition, it might be that the level of serum calcium would be normal in spite of the fact that the calcium ions in the serum were increased.[22] The serum phosphorus level in hyperparathyroidism is almost invariably low, 3.1 mg. or lower, unless renal damage is present. A normal person may have a low level of serum phosphorus on one determination, but it is characteristic of the patient with hyperparathyroidism that the level is consistently low. The calcium and phosphorus excreted in the urine are both increased. Again, however, there is an overlapping between normal and mildly hyperparathyroid states in the amount of calcium in the urine. If the hyperparathyroidism leads to bone disease, which it need not (see an earlier statement), the phosphatase level is increased, reaching 20 to 30 Bodansky units in severe forms.

There is a difference of opinion as to the cause of the bone disease in hyperparathyroidism. It is a fact that a patient may have severe hyperparathyroidism and still no clinical, roentgenologic or histologic evidence of bone disease.[22] Those who believe that the parathyroid hormone acts directly on bone tissue would probably argue either that the aforementioned condition was of short duration or that some evidence of bone change would have been found had one examined the right bone tissue (e. g., trabeculae on the inside of the bone shaft rather than the cortex). This is not my interpretation. In my opinion, hyperparathyroidism brings about a change in the blood chemical balance which results in an increased excretion of calcium in the urine. Other things being equal, this increases the chances of the patient being in negative calcium balance. If the patient is in negative calcium balance, bone disease develops; if the patient happens to ingest as much calcium as is lost in the urine and feces, the calcium balance is not negative and bone disease does not develop. For all practical purposes, this usually comes down to whether the patient drinks milk. If he does, his calcium intake will be sufficient to keep him in positive calcium balance even if he has marked hyperparathyroidism.

Osteitis Fibrosa Cystica Generalisata.—Under normal conditions there is constant metaplasia of bone. There are trabecular surfaces where bone is being laid down and surfaces where bone is being absorbed. When the patient is in positive calcium balance, the former process outweighs the latter, and vice versa when the patient is in negative calcium balance. A decrease in bone tissue may result from increased absorption or from decreased formation of bone. The bone disease asso-

20. Aub, J. C.; Albright, Fuller; Bauer, Walter, and Rossmeisl, Elsie: Studies of Calcium and Phosphorus Metabolism: VI. In Hypoparathyroidism and Chronic Steatorrhea with Tetany, with Special Consideration of the Therapeutic Effect of Thyroid, J. Clin. Investigation **11**: 211 (Jan.) 1932.

21. Albright, Fuller; Sulkowitch, H. W., and Bloomberg, Esther: Hyperparathyroidism Due to Idiopathic Hypertrophy (Hyperplasia) of Parathyroid Tissue: Follow-Up Report of Six Cases, Arch. Int. Med. **62**: 199 (Aug.) 1938.

22. Albright, Fuller; Sulkowitch, H. W., and Bloomberg, Esther: Further Experience in the Diagnosis of Hyperparathyroidism, Including a Discussion of Cases with a Minimal Degree of Hyperparathyroidism, Am. J. M. Sc. **193**: 800 (June) 1937.

ciated with hyperparathyroidism belongs in the former category. The histologic evidence of bone absorption is an increase in the number of osteoclasts. Since the bones become much weakened, and since there is no fundamental disorder of bone repair processes, one finds evidence of bone repair (increase in osteoblasts) in conjunction with bone destruction. In other words, there is a marked increase in the metaplasia of bone. There results an increase in serum phosphatase, which in the absence of hepatic disease is an index of osteoblastic activity. The bone matrix which is laid down by the osteoblasts is calcified. The stroma of the bone marrow is also increased, causing fibrosis. Sometimes one sees solid tissue tumors composed of osteoblasts and osteoclasts. These are designated as benign giant cell tumors, or osteoclastomas. In addition, one finds cysts filled with fluid and lined with fibrous capsules. These are undoubtedly due to secondary degenerative changes. Likewise, one finds fractures. Most of the tumors and the cysts look like cysts on the roentgenograms and are usually so designated by roentgenologists.

Symptoms.—The symptoms of hyperparathyroidism can be distributed under three subheadings: (*a*) those due to bone disease, (*b*) those due to renal disease and (*c*) those due to hypercalcemia per se.

The symptoms which are produced by the bone disease can readily be inferred from what has already been said. Any bone tumor which on biopsy turns out to be a benign giant cell tumor (osteoclastoma) may be evidence of underlying hyperparathyroidism. Such a tumor has a special predilection for the jaw; when it occurs there, it is called an epulis. Not every epulis, however, is due to hyperparathyroidism. Almost any skeletal manifestation — a spontaneous fracture, a decrease in height due to crushing of vertebrae, a pain in the back, tenderness in the shins—may be the first symptom of the disease.

Because of the increased amounts of calcium and phosphate excreted in the urine, the patient with hyperparathyroidism is predisposed to the formation of calcium phosphate or calcium oxalate urinary calculi.[23] Indeed, the symptoms associated with nephrolithiasis are the commonest first manifestation of the disease. Calcium salts may be deposited also in the pyramids (nephrocalcinosis) and lead to renal insufficiency. Such deposits give a characteristic roentgenographic appearance which is quite pathognomonic of this disease. Polyuria and polydipsia are rather constant and may become so severe in some patients as to lead to the diagnosis of diabetes insipidus. The cases in which polydipsia is most marked are of course the ones in which renal calculi are least apt to develop.

Just as hypocalcemia causes increased neuromuscular excitability, so hypercalcemia leads to decreased excitability. In patients with very high serum calcium there are certain symptoms apparently due to the high serum calcium per se. These patients feel tired, lose weight and are constipated. These symptoms are too indefinite to help in the diagnosis, but after the condition is corrected the relief from them is quite striking.

Parathyroid Poisoning.—By "parathyroid poisoning" is meant a sort of hyperhyperparathyroidism. If one administers parathyroid extract in large quantities to a dog, death will occur in two to three days, and at autopsy there will be calcium deposits in the alveoli of the lungs, the mucous membranes of the stomach and the kidneys.[24] The sequence of events apparently is as follows: an increasingly high level of serum calcium, inspissation of the blood, an acute failure of the kidneys to excrete phosphates, a rapid rise in serum phosphorus, a combination at the same time of high serum calcium and high serum phosphorus, a precipitation of calcium phosphates into the tissues and chemical death. Patients with hyperparathyroidism seldom have such a degree of the disease that parathyroid poisoning develops. The condition, however, does occur occasionally.[25] It is sometimes precipitated by faulty therapy. If the serum calcium is near the critical level, where a slight increase in it would precipitate parathyroid poisoning, it may so happen that a diet high in calcium would make the difference. In my opinion, the patient with severe hyperparathyroidism should be kept on a low calcium intake until there is no danger of parathyroid poisoning. One's first impulse after seeing the decalcified bones is to insure that the patient's intake of calcium shall be high; this may be fatal.

Differential Diagnosis.—In this section will be discussed only those bone diseases which might be mistaken for that due to hyperparathyroidism.

Osteoporosis belongs in that category of bone diseases in which there is too little bone because the formation of bone is decreased. Furthermore, the lack of bone formation is due not to a failure of calcium salts to be deposited in the organic matrix (compare osteomalacia) but to a failure of the osteoblasts to lay down an organic matrix. The disturbance, therefore, is not really one of calcium metabolism but one of tissue metabolism. The serum calcium and phosphorus values are normal, and the serum phosphatase is not elevated. There is one important exception to this statement. Children have a more unstable calcium equilibrium than adults and apparently develop work hypercalcemia due to atrophy of disuse. One finds this condition in children in whom a large part of the skeleton has been isolated from stresses and strains by infantile paralysis (personal communication, Dr. William J. Orr) or by a plaster cast (unpublished). The calcium excretion in the urine may be increased in the early stages of the disease, when it may give rise to renal stones. The condition when not due to atrophy of disuse or advanced age is almost confined to women past the menopause and has a predilection for the bones of the spine and the pelvis. The skull is very seldom involved.

Osteomalacia, like osteoporosis, belongs in that category of bone diseases in which there is too little formation of bone. Here the lack of formation is not due to hypoplasia of the osteoblasts but to a failure of calcium salts to be deposited in the organic matrix. In this country the condition is extremely rare and found only in association with steatorrhea. The serum calcium is normal or low; the serum phosphorus is almost always low; the serum phosphatase is high. There is no increase in the calcium excreted in the urine; if anything, it is considerably decreased.

Paget's disease differs from osteitis fibrosa generalisata in that it is a circumscribed disease. Where the bone is normal, it is absolutely normal; where it is abnormal, it has many things in common with osteitis

23. Albright, Fuller: Hyperparathyroidism: Its Diagnosis and Exclusion, New England J. Med. **209:** 476 (Sept. 7) 1933.

24. Heuper, Wilhelm: Metastatic Calcifications in the Organs of the Dog After Injections of Parathyroid Extract, Arch. Path. **3:** 14 (Jan.) 1927.

25. Dawson, J. W., and Struthers, J. W.: Generalized Osteitis Fibrosa, with Parathyroid Tumor and Metastatic Calcification, Including a Critical Discussion of Pathological Process Underlying Osseous Dystrophies, Edinburgh M. J. **30:** 421 (Oct.) 1923. Hanes, F. M.: Hyperparathyroidism Due to Parathyroid Adenoma with Death from Parathormone Intoxication, Am. J. M. Sc. **197:** 85 (Jan.) 1939.

fibrosa, notably the marked increase in metaplasia of the bone. The roentgenographic appearance of the individual bone lesions in Paget's disease is almost always pathognomonic. To be emphasized are the coarse trabeculation, the marked tendency of the bones to be expanded and the sharp demarcation between normal bone and abnormal bone. The serum calcium and phosphorus levels are normal; the serum phosphatase level is higher for a given degree of bone disease than in any other condition.

There is a syndrome characterized by osteitis fibrosa disseminata (polyostotic fibrous dyspasia [26]), precocious puberty when it occurs in females, and areas of brown pigmentation.[27] Patients with this syndrome are frequently operated on in the belief that they have hyperparathyroidism. The diagnosis should offer no difficulty. The condition is not generalized but regional. This should immediately make one doubt the presence of an endocrine cause. The roentgenographic appearance of the bone is only superficially suggestive of that seen in hyperparathyroidism. There are areas of increased density as well as areas of decreased density. The serum calcium and phosphorus levels are normal; the serum phosphatase is high if there is a marked degree of the bone disease. The areas of brown pigmentation do not occur in all cases; the precocity mentioned occurs only in females.

Multiple myeloma can produce a clinical picture which may be most difficult to distinguish from that of hyperparathyroidism. The roentgenographic appearance of the bones can be quite similar, although in most instances of multiple myeloma the lesions are more sharply demarcated. For example, one expects punched-out areas in the skull rather than a diffusely "motheaten skull." The serum calcium can be high in myeloma; when it is, the calcium excreted in the urine is also high, and nephrolithiasis may be present. The high serum calcium is usually coupled with normal or high serum phosphorus. In some cases, however, the serum phosphorus is low, just as it is in hyperparathyroidism. The presence of large amounts of Bence Jones protein in the urine is strong evidence for myeloma; absence of this protein means little, as in only 15 of 30 cases of proved myeloma was it found.[28] Whether small amounts of this protein may be present with the bone disease of hyperparathyroidism is still questionable, as in those cases in which it has supposedly been found the most rigid criteria probably were not applied. Of course, the presence of plasma cells in the peripheral blood or a positive finding in a sternal biopsy or on sternal puncture are strong evidence for myeloma. The serum phosphatase is rarely if ever elevated in cases of multiple myeloma, an important differential point.[28]

Metastatic malignant neoplasm offers less difficulty in the differential diagnosis. The roentgenographic appearance is quite distinctive. The serum calcium may be high, and there may be hypercalciuria and renal stone formation. The serum phosphorus level is usually normal, very occasionally elevated and occasionally lowered. The phosphatase level may be elevated. A primary source should be looked for, and is apt to be in the breast, prostate, kidney (hypernephroma), bronchus or thyroid.

Other less common conditions which have been confused with hyperparathyroidism are: xanthomatosis, Gaucher's disease, lymphoma, benign metastasizing hemangioma, osteogenesis imperfecta, chronic radium poisoning and renal osteitis fibrosa generalisata (see under "Secondary Hyperparathyroidism").

Treatment.—It will be impossible to discuss treatment here in any but the most superficial manner. It is important to remember that whereas the symptoms due to bone changes may be the most striking feature of the case, the ultimate prognosis will depend on the extent of the renal damage. Most of the changes in the bones, exclusive of the cysts, are reversible; however, once the kidneys are sufficiently damaged as a result of nephrocalcinosis, recovery will not take place. There is even evidence that sometimes the renal condition is progressive after its cause has been removed.[29] Therefore, when a patient with severe hyperparathyroidism is first seen, fluids should be forced, and milk should be withdrawn from the diet to avoid further nephrocalcinosis, not to mention the danger of parathyroid poisoning (already emphasized). Although the bone lesions can be made to regress with a high calcium diet,[30] this is not to be recommended.

Since no satisfactory medical treatment for the condition has yet been devised, the main therapeutic indication is to remove surgically the etiologic factor or part of it. This requires an especially trained surgeon, not just a "good thyroid surgeon." If the condition is due to one or even two adenomas, and if the serum phosphatase level is normal (i. e., no bone disease), the indication usually is to remove the tumor or tumors. If, however, the pathologic change under otherwise similar conditions is hypertrophy of all parathyroid tissue, the procedure is to remove three of the parathyroid glands and all except 200 to 300 mg.[19] of the fourth.

If in a patient with marked bone disease and high serum phosphatase (20 Bodansky units or over) one removes all of the parathyroid tumor, there will be immediate cessation of bone destruction while bone formation continues at its terrific speed. This process will result in the calcium and phosphorus being sucked into the bones from the blood serum, with an increase in the hypophosphatemia and with production of marked hypocalcemia and severe tetany.[22] The latter in the final analysis is not hypoparathyroid tetany, in which one has too little parathyroid tissue but normal bone. It is a much severer condition because of the "hungry bones." [31] This form of tetany, when it occurs, will not respond to any of the usual measures of treatment and requires constant intravenous administration of a solution of calcium gluconate. At the Massachusetts General Hospital, it has been the rule not to remove the entire tumor in the patient with high serum phosphatase, unless there is some extenuating circumstance.

Another important consideration in deciding how much parathyroid tissue to leave behind is the degree

26. Lichtenstein, Louis: Polyostotic Fibrous Dysplasia, Arch. Surg. **36**: 874 (May) 1938.

27. Albright, Fuller; Butler, A. M.; Hampton, A. O., and Smith, P. H.: Syndrome Characterized by Osteitis Fibrosa Disseminata, Areas of Pigmentation, and Endocrine Dysfunction, with Precocious Puberty in Females, New England J. Med. **216**: 727 (April 29) 1937 Albright, Fuller; Scoville, W. B., and Sulkowitch, H. W.: Syndrome Characterized by Osteitis Fibrosa Disseminata, Areas of Brown Pigmentation, and a Gonadal Dysfunction, Endocrinology **22**: 411 (April) 1938.

28. Jacobson, B.: Multiple Myeloma: Diagnosis and Treatment, to be published.

29. Albright, Fuller: Unpublished data.

30. Albright, Fuller; Baird, P. C.; Cope, Oliver, and Bloomberg, Esther: Studies on the Physiology of the Parathyroid Glands: IV. Renal Complications of Hyperparathyroidism, Am. J. M. Sc. **187**: 49 (Jan.) 1934.

31. Churchill, E. D., and Cope, Oliver: The Surgical Treatment of Hypoparathyroidism Based on Thirty Cases Confirmed by Operation, Ann. Surg., to be published.

of renal damage. In the presence of marked damage one leaves behind much more tissue than one otherwise would. The rationale is discussed under "Secondary Hyperparathyroidism."

The postoperative course should be an important subject of discussion in this section, but it will have to be omitted because of lack of space.

SECONDARY HYPERPARATHYROIDISM

There are at least two conditions in which more parathyroid hormone than is normal is needed, for compensatory reasons: rickets (or osteomalacia) and renal insufficiency.

With vitamin D insufficiency (rickets and osteomalacia) there is interference with the absorption of calcium from the gastrointestinal tract; this tends to cause a lowering of the serum calcium level, and this tendency, in my opinion, is met by hyperfunction of the parathyroid glands, the stimulus being the low level of serum calcium; the increased production of parathyroid hormone leads to a decrease in serum phosphorus; the net result is that the serum calcium level remains normal and the serum phosphorus level becomes low.[32] In patients with rickets or osteomalacia in whom serum calcium is low and serum phosphorus normal the compensatory parathyroid hyperfunction has not taken place. In patients in whom serum calcium and phosphorus are both low the hypocalcemia has occurred in spite of the hyperfunction of the parathyroid glands.[32]

Secondary Hyperparathyroidism in Renal Insufficiency.—In patients with renal insufficiency in whom there is retention of nonprotein nitrogen there is almost always retention of serum phosphorus. Such persons post mortem have hyperplasia of all four parathyroid glands.[33] It is my opinion that the sequence of events is as follows: (*a*) renal insufficiency, (*b*) phosphate retention, (*c*) tendency toward a low level of serum calcium and (*d*) hyperplasia of the parathyroid glands to meet this tendency. In rare instances in which the condition is of long duration it may be accompanied by osteitis fibrosa generalisata[34] and may be confused with primary hyperparathyroidism. It is probably the secondary hyperparathyroidism which prevents most patients with renal insufficiency from having severe tetany.

There is an important corollary to the foregoing discussion which has considerable bearing on the treatment of some patients with hyperparathyroidism. It is theoretically possible that the following sequence of events might take place: (*a*) parathyroid adenoma producing primary hyperparathyroidism, (*b*) renal damage with phosphate retention and (*c*) a state of affairs in which the amount of secondary hyperparathyroidism needed because of the renal damage equals or exceeds the amount of primary hyperparathyroidism present. When this third stage has been reached, it is obvious that it would be harmful to remove the parathyroid tumor. The most important practical point to be gleaned from the foregoing discussion is that one should remove less parathyroid tissue than otherwise in patients with hyperparathyroidism and renal damage.

32. Albright, Fuller, and Sulkowitch, H. W.: The Effect of Vitamin D on Calcium and Phosphorus Metabolism: Studies on Four Patients, J. Clin. Investigation **17**: 305 (May) 1938.
33. Pappenheimer, A. M., and Wilens, S. L.: Enlargement of the Parathyroid Glands in Renal Disease, Am. J. Path. **11**: 73 (Jan.) 1935.
34. Albright, Fuller; Drake, T. G., and Sulkowitch, H. W.: Renal Osteitis Fibrosa Cystica: Report of a Case with Discussion of Metabolic Aspects, Bull. Johns Hopkins Hosp. **60**: 377 (June) 1937.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

"ALTEX" MATTRESS AND PILLOW ENCASINGS ACCEPTABLE

Manufacturer: Expert Bedding Company, 3355 North Halsted Street, Chicago.

The "Altex" Mattress and Pillow Encasings are intended for use by allergic patients sensitive to bedding dusts or the materials ordinarily used in the manufacture of mattresses and pillows.

"Altex" mattress and pillow encasings are made of a 60 by 112 count mercerized, white shirt type broadcloth, backed and bonded with a slow oxidizing, pigmented steam calendered rubber, impregnated with a deodorant. "Altex" cloth is backed in small quantities, in order that the patient may be supplied with constantly fresh material.

Mattress Closure and Interior Flap.—The mattress has an interior flap that acts on the weight principle (i. e., the weight of the mattress presses the flap down and holds it in place). After the flap is in place, the cloth-covered slide fastener is drawn shut and the exterior is lowered to cover the slide fastener. The instructions designate that "the casing opening should always be at the foot end of the bed to prevent any escaping material from getting to the patient."

"Altex" Mattress and Pillow Encasings.

Pillow Closure and Interior Flap Sheath.—The pillow interior flap sheath is used as a block for any heavy dirts or dusts; the weight principle is again utilized here, as in the mattress encasing.

Finishing and Sewing of Mattress Encasings.—Center seams are bias bound. All sewing is first done in the raw seams, which are then bias bound, a double stitch being made to insure tightly closed seams and to prevent possible leakage.

Finishing and Sewing of Pillow Encasing.—All seaming and binding is done on the inside of the encasing.

All sewing is done on a special sewing machine, producing a tight number 401 double lock stitch, carrying approximately nine stitches per inch; mercerized 0.3 natural thread is used.

Tests for Abrasion.—"Altex" cloth has a higher rating than two like products on the market.

Tests for Boiling.—Perspiration and soap boiling tests were made in the standard perspiration solution used by rubber chemists, and soap tests were made by boiling samples in 2 per cent soap solution for a period of twenty hours; the results were shown to be negative.

Water Test.—Small bags were sewn and filled with water. Tests showed that in the beginning there was a small drip; after two hours there was considerable swelling of the threads and seams, and thereafter the loss was by evaporation alone.

"Altex" encasings are fully guaranteed for one year from the date of shipment against deterioration, rips and such other factors as may be the result of faulty material and manufacture.

"Altex" encasings are sold on recommendation of the physician alone. None are sold through the avenues of retail stores.

The encasings were examined by the Council and were found to be well made and of good design. Each detail of the construction such as the sewing and the design of the flap inside and outside of the zipper fastening were good.

The Council voted to accept the "Altex" Mattress and Pillow Encasings for inclusion on its list of accepted devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, AUGUST 16, 1941

OPERATION FOR RELIEF OF PAIN

Operations for the relief of pain are an important part of the rapidly developing field of neurologic surgery so intensively stimulated and developed by the late Harvey Cushing. Spiller [1] in 1905 suggested the possibility of relieving intolerable pain from the body by interrupting the pain pathways in the spinal cord. This procedure, called "chordotomy," was apparently first performed by Spiller and Martin [2] seven years later. Frazier [3] in 1920 published a report of the first large series of cases in which pain was relieved by this means. The pain in all these cases was intractable; the cause in nearly all of them was inoperable cancer. In a report recently published in THE JOURNAL, Grant,[4] an associate and a successor of Frazier, has reviewed the history of the operative relief of pain. Chordotomy, while effective in relieving pain from the torso and lower extremities, is not especially successful when pain is high in the arms or neck. The severance of individual sensory fibers is another method for the surgical relief of pain although applicable only in special locations, and its value is amply attested by the remarkable triumph often achieved in patients with tic douloureux and cardiac, pelvic and other pains.

A new operation for the relief of pain at the higher levels has been reported by Schwartz and O'Leary [5] of Washington University School of Medicine. The approach is cerebellar and consists of section of the pain pathways in the medulla at the level of the inferior olive. In the first case the relief from pain was immediate. Two days after operation, however, the patient died; necropsy showed extensive carcinomatosis of the lung. Important observations were made in this case on the central nervous system. By correlating anatomic and clinical data obtained from this patient it was possible to establish the location in the medulla of the pain fibers to the different parts of the body, and it was possible to demonstrate for the first time the topical localization of pain fibers within the spinothalamic tract of the brain stem. It also proved, for the first time, the feasibility of the procedure for the relief of pain located in the arms, chest and neck. In the second case the postoperative convalescence was uncomplicated, and complete alleviation of pain was obtained in the right chest, shoulder and axilla. Possibly wider application for this procedure than the relief of pain in inoperable cancer is suggested by a third instance cited by Schwartz and O'Leary; a patient with Raynaud's disease, operated on by J. C. White of Boston, enjoyed complete relief from pain.

These studies have successfully achieved two objectives. First, they provide another tool in the relentless battle against intolerable effects of pain located in parts of the body hitherto inaccessible to surgical relief and thus extend the usefulness of this important therapeutic procedure. Second, they contribute additional information concerning the exact localization of pain pathways in the central nervous system and thus bring closer to realization an accurate "wiring diagram" of the important nerve impulses which control human activity.

1. Spiller, W. G.: The Occasional Clinical Resemblance Between Caries of the Vertebrae and Lumbothoracic Syringomyelia, and the Location Within the Spinal Cord of the Fibers for the Sensations of Pain, and Temperature, Univ. Pennsylvania M. Bull. **18**: 147, 1905-1906; The Location Within the Spinal Cord of the Fibers for Temperature and Pain Sensations, J. Nerv. & Ment. Dis. **32**: 318, 1905.

2. Spiller, W. G., and Martin, Edward: The Treatment of Persistent Pain of Organic Origin in the Lower Parts of the Body by Division of the Anterolateral Column of the Spinal Cord, J. A. M. A. **58**: 1489 (May 18) 1912.

3. Frazier, C. H.: Section of the Anterolateral Columns of the Spinal Cord for the Relief of Pain, Arch. Neurol. & Psychiat. **4**: 137 (Aug.) 1920.

4. Grant, F. C.: Surgical Methods for Relief of Pain, J. A. M. A. **116**: 567 (Feb. 15) 1941.

5. Schwartz, H. G., and O'Leary, J. L.: Section of the Spinothalamic Tract in the Medulla with Observations on the Pathway for Pain, Surgery **9**: 183 (Feb.) 1941.

FRONTAL LOBOTOMY

Elsewhere in this issue of THE JOURNAL (page 517) is a condensed report of a panel discussion on frontal lobotomy held before the Section on Nervous and Mental Diseases at the annual session of the American Medical Association in Cleveland on June 5. In frontal lobotomy most of the fiber tracts are cut in the white matter of both frontal lobes, considerably anterior to the motor cortices. This procedure is said to be effective in removing the anxiety and in abolishing the responses (suicidal, homicidal and so on) to the delusions and hallucinations in certain depressive states, such as involutional melancholia, and in certain of the more agitated schizophrenic states. Psychotic persons subjected to this procedure also seem to lose much of their concern with self and with their own visceral and mental activities; they develop a more normal, healthy attitude toward their environment.

In spite of these "improvements" in the mental condition of some patients this operation should not be considered capable of transforming a psychotic personality into a normal one. Even in our present state of ignorance concerning the frontal lobes there is ample evidence of the serious defects produced by their removal in nonpsychotic persons (Penfield and

Evans,[1] Brickner,[2] Goldstein,[3] Halstead [4]). It is inconceivable that any procedure which effectively destroys the function of this portion of the brain could possibly restore the person concerned to a wholly normal state. In a few instances frontal lobotomy has resulted in convulsions, which did not appear until months or even years after the operation. As yet the nature and magnitude of the defects attendant on frontal lobectomy or frontal lobotomy are only superficially understood. Their nature must be thoroughly determined and their degree accurately assessed if we are to balance intelligently the beneficial results of this procedure against the alterations in personality which the procedure itself may produce. Only thus can frontal lobotomy be truly evaluated and assigned a proper place in the therapeutic armamentarium of the psychiatrist.

An emotional attitude of violent unreasoning opposition to this form of treatment would be inexcusable. True it is a "mutilating" operation and it does result in certain defects in personality and behavior. However, much surgery is "mutilating" in the sense that some ordinarily normal tissue is removed in order to achieve a beneficial result. This is true, for instance, of appendectomy, gastrectomy, sympathectomy and the removal of cerebral cortical scars for the relief of localized convulsions. Much abdominal surgery also results in "defects." Moreover, only severely mentally ill patients who are permanently incapacitated are subjected to this form of treatment. Frontal lobotomy has not been advocated for "normal" persons.

In this panel discussion, abstracted in this issue of THE JOURNAL, sufficient information is presented to warrant further experience with this procedure. Until adequate evidence is available, this operation remains of necessity an experimental procedure. Its use may well be restricted to persons who have received the benefits, if any, of all less drastic forms of therapy that are recognized by modern psychiatry; to persons in whom there is no doubt, because of the long duration and the nature of the illness, that their condition is both serious and otherwise permanent. However, it does not seem reasonable to demand that all patients must be previously submitted to other drastic, often "mutilating," procedures such as an insulin, metrazol and electric shock, which like frontal lobotomy are also still in the experimental stage and in the process of assessment. The problems concerned in frontal lobotomy are susceptible of solution only by those specially trained in the fields of psychiatry, psychology and neurology. Certainly such an operation cannot be widely applied to all forms of the neuroses and psychoses. Neither should it be utilized except by specially trained investigators situated in centers equipped to study such methods under adequate control. In the present experimental stage there is no excuse for dissemination of discussions or of any statements laudatory of this procedure to the general public. No doctor can yet assert that this is or is not a truly worthwhile procedure. The ultimate decision must await the production of more scientific evidence.

1. Penfield, Wilder, and Evans, Joseph: The Frontal Lobe in Man: A Clinical Study of Maximum Removals, Brain **58**: 115 (March) 1935.
2. Brickner, R. M.: The Intellectual Functions of the Frontal Lobes, New York, Macmillan Company, 1936.
3. Goldstein, Kurt: The Significance of the Frontal Lobes for Mental Performances, J. Neurol. & Psychopath. **17**: 27 (July) 1936.
4. Halstead, W. C.: Behavioral Effects of Lesions of the Frontal Lobe in Man, Arch. Neurol. & Psychiat. **42**: 780 (Oct.) 1939; Preliminary Analysis of Grouping Behavior in Patients with Cerebral Injury by the Method of Equivalent and Nonequivalent Stimuli, Am. J. Psychiat. **96**: 1263 (May) 1940.

Current Comment

CHEMICAL NATURE OF BLOOD AGGLUTINOGEN

The isolation and identification of the human blood group specific B-agglutinogen has just been reported by Witebsky,[1] a refugee physician from the Institute for Experimental Cancer Research, Heidelberg, Germany, at present a member of the research staff of the Buffalo General Hospital. Determination of the chemical nature of this hereditary hapten is of both theoretical and clinical interest. Following the development of modern methods of determining incompatibilities to blood transfusion in patients, blood group specific A-substance was detected in the urine, saliva and gastric contents of subjects belonging to the type A blood group. The first successful isolation of this hereditary agglutinogen, however, was made from horse saliva. From 1 liter of this saliva (obtained by therapeutic salivation) Landsteiner [2] isolated 5 mg. of a mucin-free, protein-free, coctostable substance which would specifically inhibit type A rabbit hemolysin and type A human isohemagglutinin. Chemical analyses showed that this specific erythrocytic hapten is a carbohydrate belonging to the same general category as the type-specific bacterial polysaccharides. Landsteiner's chemical technic was afterward improved by Goebel,[3] who was able to isolate from 1 to 3 per cent of type A erythrocytic polysaccharide from commercial peptone. This result was of main clinical interest at the time, since it suggested a fertile source of technical error in the immunochemical classification of pneumococci and other capsulated bacteria. Numerous unsuccessful attempts were made at about the same time to isolate B-substances from human blood. It was not till the discovery that type B hapten exists in particularly high concentration in the gastric juice of subjects belonging to blood group B that these attempts were successful. From 110 cc. of pooled blood group B gastric juice Witebsky and his co-workers were able to isolate 13.5 mg. of type B erythrocytic polysaccharide. In dilutions as high as 1 : 2,000,000 the Witebsky hapten completely inhibits isoagglutination of human B-group cells by A-group human serum. Parallel titrations suggest that the concentration of type B erythrocytic polysaccharide

1. Witebsky, Ernest, and KlenDshoj, Niels C.: J. Exper. Med. **72**: 663 (Dec.) 1940.
2. Landsteiner, Karl: J. Exper. Med. **63**: 185 (Feb.) 1936.
3. Goebel, Walter F.: J. Exper. Med. **68**: 221 (Aug.) 1938.

is in the neighborhood of 1:1,000 in group B gastric juice. The main interest in Witebsky's research lies in its promising clinical applications.[4] Contrary to earlier clinical beliefs, it is now increasingly evident that transfusion of O blood into A and B patients often causes serious toxic reactions. This toxicity is presumably due to anti-A or anti-B isoagglutinins and isohemolysins invariably present in O bloods. The titer of these isoantibodies may vary greatly, but they are often present in sufficiently high concentration to cause demonstrable test tube reactions with type A, B or AB recipient erythrocytes. In recognition of this danger, a law has been recently enacted in New York State in which "careful titration of the anti-A and anti-B properties of O blood is required before O blood may be given to individuals belonging to other groups." Witebsky finds that O blood toxicity for type A recipients can be completely inhibited by neutralizing the anti-A iso antibodies with A erythrocytic carbohydrate. In ten human blood transfusions thus far made with A neutralized O bloods toxic reactions that could be attributed to anti-A isoagglutinin have not been noted. Calculated from his reported data, 2 mg. of A carbohydrate is sufficient to detoxicate 500 cc. of O blood of high anti-A titer. In the opinion of Witebsky and his colleagues, the addition of A substance to O blood is in all cases clinically harmless. Whether or not his newly isolated B erythrocytic carbohydrate is equally effective with type B recipients has not yet been determined.

DENTAL CARIES IN RURAL CHILDREN

The connection between dental caries in children and the reduced cutaneous production of vitamin D from solar radiation due to climatic factors has been studied by East and Kaiser.[1] They took into consideration the mean number of hours of sunshine annually, the latitude and the mean winter temperature. Next they selected the caries rates for white children residing in three hundred and fifty-eight rural or semirural counties of twenty-four states of the United States as determined by data collected under the direction of the American Dental Association and the United States Public Health Service.[2] The survey comprised 581,708 children about equally divided according to sex and classified in age groups of 6 to 8, 9 to 11 and 12 to 14 years. Rural children were selected because of the greater uniformity in ethnology, food, housing and living conditions and in the amount of dust and smoke in the air. The study was restricted to white children to exclude, as far as possible, the variable which skin pigmentation might introduce. Only caries in permanent teeth was considered. The data for the mean number of annual hours of sunshine in the various counties and for the mean winter temperature were taken from records of the United States Weather Bureau. Of the three hundred and fifty-eight counties one hundred and ninety had more and one hundred and sixty-eight had fewer than two thousand six hundred hours of sunshine annually. Groups living in counties where most sunshine prevailed had in every instance the lowest rates for caries. One hundred and thirty-four counties had a mean winter temperature higher and two hundred and twenty-four a mean temperature lower than 30 F. Groups living in zones in which the mean winter temperature was below 30 F. had higher rates for caries than those who lived where the mean temperature was higher. One hundred and sixty-nine counties were north and one hundred and eighty-nine were south of latitude 40 north. In every instance the children living in the northern zone had a higher mean rate for caries. To determine the degree of relation between the caries rates and the three climatic factors of sunshine, latitude and winter temperature, the correlation coefficients of all possible combinations were computed by means of the partial regression equation,[3] an intricate statistical formula, and the results are tabulated by the authors. The lowest values in their sunshine series indicated that each additional hundred hours of sunshine was associated with a decrease of 3.92 ± 0.8 and 4.7 ± 1 per cent from the mean rates of caries in the permanent teeth of boys and girls, respectively, in the 9 to 11 year groups. The highest values were in the 6 to 8 year groups, which showed respective decreases of 7.4 ± 1 and 6.3 ± 1.6. The values for the 12 to 14 year groups were intermediate. In their latitude series each increase of 1 degree of latitude was accompanied with a percentage increase of 2.7 ± 1.3 in the caries rates for boys of 6 to 8 years. In girls of the same age the increase of the mean rate was 1.1 ± 1.2 per cent. The other age groups showed important and statistically significant percentage increases. The lowest value for the groups of 9 to 11 and 12 to 14 years was 4.1 ± 1.1 per cent for each degree of latitude. In the evaluation of the relation of winter temperature to caries rates it was found, after the overlapping influences of sunshine and latitude had been eliminated, that winter temperature exerted little effect on the caries rates where boys were concerned and on those for girls in the age groups from 9 to 11. This study, accordingly, confirms previous evidence that a significant relation seems to exist between the incidence of dental caries and the amount of sunshine and the latitude. Winter temperature was an important climatic factor only for girls in the age groups of 6 to 8 and 12 to 14 years. This difference in incidence, the authors speculate, may be due to the fact that the youngest girls are kept indoors in cold weather while boys of the same age are not. Similarly, rural girls between 12 and 14 years may have indoor duties while boys of the same age find their recreation and tasks outdoors. The results of this study of environmental factors in relation to dental caries, they say, are in accord with those obtained in controlled vitamin D therapy experiments and in artificial ultraviolet irradiation.

4. Witebsky, Ernest; KlenDshoj, N. C., and Swanson, P. R.: J. Infect. Dis. **67**: 188 (Nov.-Dec.) 1940.

1. East, Bion R., and Kaiser, Hilda: Relation of Dental Caries in Rural Children to Sex, Age and Environment, Am. J. Dis. Child. **60**: 1289 (Dec.) 1940.

2. Messner, C. T.; Gafafer, W. M.; Cady, F. C., and Dean, H. T.: Dental Survey of School Children, Ages 6 to 14 Years, Made in 1933-1934 in Twenty-Six States, Pub. Health Bull. 226, U. S. P. H. S., 1936.

3. Fisher, R. A.: Statistical Methods for Research Workers, London, Oliver & Boyd, 1936.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

ARMY IN BEST PHYSICAL SHAPE SINCE START OF EMERGENCY

According to health records from all nine corps areas, the Army of the United States is in the best physical shape it has been in since the emergency began, the War Department announced, July 31. No epidemic diseases are prevalent. During the second week in July the admission rate to all Army hospitals for all causes was the lowest of the year. The rate went up slightly during the third week, but blistered heels and similar minor ailments made the difference.

For the last two months respiratory diseases have been no higher than the ten year rate for the preemergency army. This ten year rate is considered by Army medical men to be excellent.

At present the rate of men off duty because of diseases is 12 per thousand. In the Army a man is either on duty or in a hospital, so the same causes that would force a civilian to take it easy for a half day send a soldier to the hospital for attention.

Cases of Poliomyelitis Reported in Army Since Jan. 1, 1941

Station	Date Reported	No. of Cases
Camp Beauregard, La.	January 11	1
Camp Beauregard, La.	January 18	1
Camp Haan, Calif.	April 22	1
Camp Haan, Calif.	April 24	1
Camp Livingston, La.	January 18	1
Camp Stewart, Ga.	April 26	1
Fort F. E. Warren, Wyo.	March 1	2
Fort Brown, Texas	May 23	1
Fort Benning, Ga.	July 10	1
Fort Custer, Mich.	July 16	1
Atlanta, Ga.	July 24	1
Total, first seven months, 1941		12

The Surgeon General's Office is notified by telegraph of each case of such serious epidemic diseases. In the last seven months only 12 cases were reported from all corps areas.

AIR CONDITIONING FOR ARMY BARRACKS

The War Department announced on July 31 authorization for the installation by the Engineer Corps of air conditioning equipment, in the form of humidifying coolers, at army air corps installations in high temperature zones, at a total cost of about $500,000. Investigations conducted by Engineer Corps officers in the field indicated a temperature drop from 10 to 20 degrees F. when the coolers were used. They are of simple construction and easily installed. Consisting of a metal cabinet filled with fine cut porous substance such as excelsior, the cabinet is attached outside a window. The filler material is thoroughly wet down with water, and a fan on the room side of the cabinet draws wet or humid air through it into the room. Evaporation of this moisture lowers the room temperature. Theaters, chapels, barracks, hospitals, bachelor officers' quarters, cadet barracks and school buildings on the selected posts will be equipped with coolers. Coolers will be installed at Las Vegas Airfield, Nevada, Phoenix-Higley Airfield, Luke Field and Tucson Airfield, Arizona, and Muroc Bombing Range, Victorville Airfield, Bakersfield Airfield, Fresno Airfield, Taft Airfield, Merced Airfield and Lemoore Airfield, all in California. The work will proceed immediately.

PHYSICAL EXAMINATIONS FOR OFFICERS ELIMINATED

During the present emergency the annual physical examination of officers, warrant officers and nurses of the Regular Army, and the usual physical examination in the event of temporary promotion for all officers in the Army of the United States, except Air Corps officers, have been eliminated, the War Department announced on July 31.

Previously, every officer, warrant officer and nurse of the Regular Army was required to undergo a physical examination each year, and on promotion an officer again received a physical examination. The new policy dispenses with these examinations except in the case of Air Corps officers, who will continue to be examined twice each year. Officers of the Regular Army who receive permanent promotion must still receive physical examinations.

The physical examinations were eliminated because of the excellent physical condition of all officers at the start of the emergency. Regular Army officers have had their annual physical examination and were found unusually fit. Officers in other components of the Army received rigid physical examinations on induction into federal service.

DEFENSE ACTIVITIES OF NAVY'S MEDICAL SERVICE

The Bureau of Medicine and Surgery of the U. S. Navy has established a section of industrial health to help increase production in the Navy's industrial shore establishments by keeping preventable accidents and industrial disease at a minimum. Sixteen medical officers recently completed courses of postgraduate instruction at the schools of public health of Columbia University in New York and Harvard University in Boston. These officers were to be assigned to the shore establishments. The Naval Medical School is also training and equipping mobile epidemiologic and sanitary units, which may be sent to meet health emergencies wherever the Navy's forces are distributed. The central laboratory in the Naval Medical School will serve as a base for these units to carry out investigations too complicated to be done in the field. It is pointed out that the purpose of this plan is twofold: first, the eradication and prevention of spread of infectious diseases and, second, the accumulation of knowledge which should be of value in the future.

PUBLIC HEALTH SERVICE TO FIGHT VENEREAL DISEASE

A nationwide venereal disease control program in areas of military and defense industry concentration was announced on July 27 by WPA Commissioner Howard O. Hunter. The program has been approved by the President as a unit of the WPA national defense research and records assistance project, for which an allocation of $5,015,864 was made several months ago. The United States Public Health Service will act as the official sponsor.

Surg. Gen. Thomas Parran said that the purpose of the program is to provide assistance to state and local health authorities in (1) bringing under immediate treatment selectees who have been rejected or deferred by their local Selective Service boards because of syphilis or gonorrhea and making these men available for military service on completion of treatment; (2) tracing

the sources of infection and rendering potential spreaders of venereal disease noninfectious through prompt and adequate treatment; (3) placing treatment facilities for gonorrhea on a par with those for syphilis and providing medical and public information on new chemotherapeutic methods for curing gonorrhea, and (4) establishing emergency venereal disease control programs in "boom" towns where regular public health facilities are insufficient to cope with the problem.

Dr. Parran cited findings of Selective Service medical examination which showed that 6 per cent of the draftees examined were infected with syphilis or gonorrhea.

Mr. Hunter pointed out that WPA workers have engaged in venereal disease control work in many parts of the country during the last six years. A check made several months ago revealed that about four thousand project employees in thirty-three states and the District of Columbia were assisting in the operation of four hundred and thirty-one public clinics for the treatment of venereal diseases. This assistance takes many forms. Among the four thousand WPA employees there were laboratory technicians, physicians, nurses, researchers, investigators, clerical workers and miscellaneous help. "One of the most notable instances," Mr. Hunter continued, "is illustrated by the development of venereal disease control work in Chicago. Largely as the result of the assistance rendered by the Work Projects Administration, the Chicago Board of Health has been able to expand the capacity of its various venereal disease clinics from a daily average of five hundred patients in 1937 to about eighteen hundred today. This, according to preliminary evidence, has resulted in an actual decline in the prevalence of syphilis in Chicago." WPA has also participated in venereal disease control programs in New York, Boston and other cities.

First proposals for projects under the new nationwide program have already been received. One came from Dr. Roland R. Cross, Illinois state director of public health, and another from Dr. Herman N. Bundesen, president of the Chicago Board of Health.

MEDICAL RESEARCH COMMITTEE AND THE DEFENSE PROGRAM

President Roosevelt has designated four members of a medical research committee in the newly established Office of Scientific Research and Development to direct medical research in relation to the defense program, it was announced on July 17. They are Drs. Alphonse R. Dochez, professor of medicine, Columbia University College of Physicians and Surgeons, New York; Alfred N. Richards, professor of pharmacology and vice president for medical affairs of the University of Pennsylvania, Philadelphia; Lewis H. Weed, professor of anatomy, Johns Hopkins University School of Medicine, Baltimore, and chairman of the division of medical sciences of the National Research Council, and Albert Baird Hastings, Ph.D., Hamilton Kuhn professor of biologic chemistry, Harvard Medical School, Boston. The Office of Scientific Research and Development was established by an executive order of the President issued on June 30. Vannevar Bush, Ph.D., president of the Carnegie Institution of Washington, who has been chairman of the National Defense Research Committee, is now director of the new research agency.

U. S. ARMY TYPHOID VACCINE

The Army in the last fiscal year produced more typhoid vaccine at the Army Medical School, Washington, D. C., than in any other peacetime year. Not only are soldiers of the Army being inoculated against typhoid, but the vaccine is also being supplied to the United States Public Health Service, the Navy, the Civilian Conservation Corps, the Department of Justice, the Indian Service, the Veterans' Administration, the government of Puerto Rico and many others. As part of the good neighbor policy, the stock culture for vaccine has been furnished on request to other nations in the western hemisphere.

In the last year the output was increased more than eight times. A total of 33,500,000 cc., the equivalent of 8,500 gallons of typhoid vaccine, were made. This represents a saving to the government of $1,540,000 over the cost of purchase. Typhoid vaccine is being made by the Army with a culture from the body of a typhoid fever carrier in the Panama Canal Zone, who is kept under constant supervision by Army doctors. The original typhoid culture came from an English soldier who died in the Boer war, but recent investigation showed this strain had lost its potency. The cultures are preserved in glass tubes by a special process of freezing at a temperature of 108 degrees below zero and sealing in a partial vacuum. These tubes of cultures can be preserved for long periods.

The Army laboratory in which the vaccine is made is the largest of its kind in the world. Planting, harvesting and bottling of the vaccine are done in air conditioned cubicles which are sterilized by live steam prior to use. During all operations, filtered and sterilized air is pumped into the chambers and maintained at a pressure above that of the atmosphere in order to prevent the entrance of untreated air. The vaccine is standardized by the use of an "electric eye," so that all batches will be of the same strength. From a mixing chamber it passes to an automatic bottling device to be sealed in the final state for issue. Control tests are made on every run of vaccine at every stage of production. These tests extend over a period of four weeks, until which time no batch of vaccine is given a clearance for issue.

MEDICAL R. O. T. C. GRADUATES

More than four hundred R. O. T. C. students received certificates after completing the six weeks course July 23 at the Medical Field Service School, Carlisle Barracks, Pa. Seventeen medical schools east of the Mississippi were represented in this group, which was the first R. O. T. C. class to be graduated at Carlisle Barracks since the President declared the present military emergency. This brings the total of graduates, however, of the several camps and classes conducted at the Medical Field Service School to 18,546. Brig. Gen. Addison D. Davis, commandant of the school, presented the certificates. Col. Philip W. Huntington, George Washington University, Washington, D. C., was in immediate charge of the camp of the R. O. T. C. students, and his executive officer was Col. Asa M. Lehman, professor of military science and tactics at the Jefferson Medical College, Philadelphia. The other instructors at the camp besides the entire faculty of the Medical Field Service School comprises the professors of military science and tactics who have accompanied the R. O. T. C. students from their medical schools and include Lieut. Col. James H. Ashcraft, Boston University, Lieut. Col. Rowland D. Wolfe, Ohio State University, Major Harry G. Wyer, University of Vermont, Capt. Edward K. Reid, Syracuse University, Capt. John P. Cameron III, University of Pittsburgh, Capt. Dan. J. Bulmer, University of Michigan, and Lieut. James G. Kitchen II, University of Pennsylvania.

CHEMICAL WARFARE ARSENAL

The War Department announced on July 29 the contract for construction of a Chemical Warfare Service Arsenal at Huntsville, Ala., to cost about $29,000,000. Units comprising the complete arsenal will include eleven manufacturing plants, four chemical loading plants, a depot, a plant storage, laboratories, shops, offices, a hospital, fire and guard installations, utilities and all necessary appurtenances. Located on a tract of more than 30,000 acres, which was selected for its proximity to fuel and raw materials for construction and manufacturing, the arsenal will produce smoke materials and other chemical warfare agents for the military establishment.

HUMAN HAIR IS NOT PURCHASED BY ARMY

The War Department announced on July 7 that human hair is not being purchased by the Army. This announcement was made because of many requests for information concerning the sale of human hair as the result of a wire service story that "blond human hair" was needed by the Army in the manufacture of certain instruments.

ARMY RESERVE OFFICERS ORDERED TO ACTIVE DUTY

FIRST CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, First Corps Area, which comprises the states of Maine, Vermont, New Hampshire, Rhode Island, Massachusetts and Connecticut:

ADAMS, Arthur J., 1st Lieut., Bridgeport, Conn., Camp Lee, Va.
AIKEN, Sidney, Lieut., Manchester, Conn., Camp Lee, Va.
BEGG, Charles F., 1st Lieut., Providence, R. I., Camp Lee, Va.
BERMAN, Leo, 1st Lieut., Boston, Camp Lee, Va.
BLOSSOM, Frank O., Major, Caribou, Maine, Fort George C. Meade, Md.
BUNCE, James W., Major, North Adams, Mass., Fort Devens, Mass.
BURKE, Francis H., 1st Lieut., Rockville, Conn., Camp Lee, Va.
BURNS, Edward D., 1st Lieut., Arlington, Mass., Camp Lee, Va.
DURGIN, Lawrence N., Captain, Amherst, Mass., Camp Edwards, Mass.
DUZMATI, Paul P., 1st Lieut., Bridgeport, Conn., Camp Lee, Va.
EASTMAN, Oliver R., 1st Lieut., Burlington, Vt., Fort Ethan Allen, Vt.
FAMIGLIETTI, Joseph A., 1st Lieut., East Boston, Mass., Camp Lee, Va.
FREEDMAN, Herman S., Lieut., Cambridge, Mass., Camp Lee, Va.
GIFFORD, William H., 1st Lieut., Concord, N. H., Camp Lee, Va.
GOODMAN, Max, Lieut., Roxbury, Mass., Camp Lee, Va.
HARASIMOWICZ, Paul P., Captain, Gardner, Mass., Camp Lee, Va.
HEFFERNAN, Edward V., 1st Lieut., Providence, R. I., Camp Lee, Va.
JOHNSON, Elwood G., Lieut., Waltham, Mass., Fort Banks, Mass.
KELLER, Jay E., 1st Lieut., Burlington, Vt., Camp Forrest, Tenn.
LAWLESS, Thomas F., 1st Lieut., Stamford, Conn., Camp Lee, Va.
McGREGOR, Eugene B., 1st Lieut., Lisbon, N. H., Camp Lee, Va.
McINTYRE, George A., 1st Lieut., Montpelier, Vt., Camp Forrest, Tenn.
MILLETT, Frank A., Major, Greenfield, Mass., Fort Adams, R. I.
MINIHAN, John C., 1st Lieut., Haverhill, Mass., Camp Edwards, Mass.
MOULTON, Charles W., 1st Lieut., Boston, Army Base, Boston.
MUELLER, Harry L., 1st Lieut., Winchester, Mass., Camp Lee, Va.
MULCAHY, Richard E., 1st Lieut., Wellesley, Mass., Camp Edwards, Mass.
NEWCOMB, Richard V., 1st Lieut, Burlington, Vt., Fort Rodman, Mass.
SHENKER, Benjamin M., 1st Lieut., Hartford, Conn., Fort Devens, Mass.
SMITH, Hugh A., 1st Lieut., New Haven, Conn., Camp Lee, Va.
WEBBER, Edward P., 1st Lieut., Winthrop, Maine, Fort Oglethorpe, Ga.
YANKAUER, Alfred, Jr., 1st Lieut., Boston, Fort Bragg, N. C.

Orders Revoked

BEGG, Charles F., Lieut., Providence, R. I.
FEINMAN, Maxwell H., 1st Lieut., Lynn, Mass.
HEFFERNAN, Edward V., Lieut., Providence, R. I.
McINTYRE, George A., Lieut., Montpelier, Vt.
MONGILLO, Frank, Major, New Haven, Conn.
MUELLER, Harry L., Lieut., Winchester, Mass.
NILES, John O., 1st Lieut., Osterville, Mass.
RUBENSTEIN, Abraham D., 1st Lieut., Brighton, Mass.
SPIEGEL, Charles M., 1st Lieut., New Haven, Conn.
WITTIG, Joseph E., Lieut., West Warwick, R. I.

CORRECTION

Lieutenant Geller on Active Duty.—In THE JOURNAL, July 5, page 46, under the First Corps Area, the name of 1st Lieut. Philip S. Geller, Newport, R. I., was included among the orders revoked. Since his previous orders were revoked, Lieutenant Geller has again been ordered to active duty and is now serving at Fort Adams, R. I.

THIRD CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Third Corps Area, which comprises the states of Pennsylvania, Virginia, District of Columbia and Maryland:

BEAVERS, Charles Lee, 1st Lieut., Franklin, Va., Camp Grant, Ill.
BERRY, Lorenzo Robert, Captain, Washington, D. C., Fort Dix, N. J.
BLOCK, Louis Henry, 1st Lieut., Philadelphia, Camp Pendleton, Va.
BYERS, John Maxwell, 1st Lieut., Hyattsville, Md., Camp Lee, Va.
CAPLAN, Milton Louis, 1st Lieut., Ellwood City, Pa., Fort Belvoir, Va.
COCHRAN, James Edward, 1st Lieut., Pittsburgh, Camp Lee, Va.
CORRADO, Albert Guy, 1st Lieut., Pittsburgh, Indiantown Gap Military Reservation, Pa.
DANISH, Jacob Mayr, 1st Lieut., Washington, D. C., Camp Lee, Va.
DEPROPHETIS, Nino, 1st Lieut., Chester, Pa., Camp Lee, Va.
DIERWECHTER, Reuben James, 1st Lieut., Philadelphia, Camp Lee, Va.
DORNENBURG, James Raymond, 1st Lieut., Carnegie, Pa., Camp Lee, Va.
DOWNEY, Regis Fallon, 1st Lieut., Greensboro, Pa., Camp Lee, Va.
EDDINGER, Leo Clement, 1st Lieut., Allentown, Pa., Camp Lee, Va.
ELLIOTT, Israel Edward, Jr., 1st Lieut., Washington, D. C., Fort Dix, N. J.
ERHARD, Gerald Arthur, 1st Lieut., Curwensville, Pa., Camp Lee, Va.
ERVIN, Kenneth Dubois, 1st Lieut., Jenkintown, Pa., Camp Lee, Va.
FORSTER, Hans Walter, Jr., 1st Lieut., Philadelphia, Camp Lee, Va.
FREEDMAN, Abraham G., 1st Lieut., Philadelphia, Camp Lee, Va.
FREEDMAN, Donald Kenneth, 1st Lieut., Washington, D. C., Camp Grant, Ill.
GARNER, Blaine Rosenberger, 1st Lieut., Doylestown, Pa., Indiantown Gap Military Reservation, Pa.
GASSAWAY, William Farrow, 1st Lieut., Ellicott City, Howard County, Md., Camp Lee, Va.
GAVER, Leo Junior, 1st Lieut., Meyersville, Frederick County, Md., Camp Lee, Va.
GILLIGAN, Frank Patrick, 1st Lieut., Ashley, Pa., Camp Lee, Va.
GREENWOOD, George Roy, 1st Lieut., Sugar Notch, Pa., Camp Lee, Va.
GREM, Francis Matthew, 1st Lieut., Philadelphia, Camp Lee, Va.
GRIMES, James Thomas, 1st Lieut., Philadelphia, Camp Lee, Va.
HAINES, Risley Frith, 1st Lieut., Baltimore, Fort George G. Meade, Md.
HAMDI, Turgut Nazif, 1st Lieut., Bryn Mawr, Pa., Camp Lee, Va.
HOFFMAN, Frank David, 1st Lieut., Greensburg, Pa., Camp Lee, Va.
HOLMBOE, Harris Studley, 1st Lieut., Charlottesville, Va., Camp Lee, Va.
HOLT, Frederick Guy, 1st Lieut., Shamokin, Pa., Camp Lee, Va.
HOON, James Richard, 1st Lieut., Monongahela, Pa., Camp Lee, Va.
HURST, John Witmer, 1st Lieut., Altoona, Pa., Camp Lee, Va.
IRWIN, Ralph Theodore, 1st Lieut., Lancaster, Pa., Camp Lee, Va.
KACZYNSKI, Stanley Bernard, 1st Lieut., Pittsburgh, Holabird Quartermaster Depot, Baltimore.
KAY, Alvin Irving, 1st Lieut., Washington, D. C., Camp Lee, Va.
KELLER, David Henry, Lieut. Col., Stroudsburg, Pa., Camp Lee, Va.
KELLY, Vernon Charles, 1st Lieut., Baltimore, Camp Lee, Va.
KISTLER, William Stephen, 1st Lieut., Pennsburg, Pa., Camp Pendleton, Va.
KLINE, Jacob Maurice, 1st Lieut., Ligonier, Pa., Camp Lee, Va.
KNOWLES, Willard Edward, 1st Lieut., Philadelphia, Camp Lee, Va.
KOSTYAL, John Louis, 1st Lieut., Pittsburgh, Camp Lee, Va.
LANDIS, Floyd Mervin, 1st Lieut., Lancaster, Pa., Camp Lee, Va.
LARGE, Fred Denzel, 1st Lieut., Clairton, Va., Camp Lee, Va.
LAURIA, Michael Herbert, 1st Lieut., Philadelphia, Camp Lee, Va.
LEEBORN, William M., 1st Lieut., Philadelphia, Camp Lee, Va.
LEWIS, Homer Hill, Jr., 1st Lieut., Clearfield, Pa., Camp Lee, Va.
LYON, William Cochran, 1st Lieut., Ardmore, Pa., Camp Lee, Va.
MAHER, Robert Campbell, 1st Lieut., Leechburg, Pa., Camp Lee, Va.
MARTIN, Frederick Herman, 1st Lieut., Macungie, Pa., Camp Grant, Ill.
McCORMICK, Richard Harry, 1st Lieut., Emsworth, Pa., Camp Grant, Ill.
McCUNE, David Pollock, Jr., 1st Lieut., McKeesport, Pa., Camp Lee, Va.
McGOVERN, William Joseph, 1st Lieut., Woodville, Pa., Camp Grant, Ill.
MENSH, Maurice, 1st Lieut., Washington, D. C., Camp Lee, Va.
MILNAMOW, Paul Thomas, 1st Lieut., Wilkes-Barre, Pa., Camp Grant, Ill.
MUNCHAK, Alexander Michael, 1st Lieut., Scranton, Pa., Camp Lee, Va.
NADLER, Manuel Princeton, 1st Lieut., Ambridge, Pa., Camp Lee, Va.
OGLESBY, Forrest Elliott, 1st Lieut., Oceana, Va., Camp Lee, Va.
PILGRAM, Robert Hark, 1st Lieut., Lancaster, Pa., Camp Grant, Ill.
ROMAINE, Hunter Huidekoper, 1st Lieut., Petersburg, Va., Camp Lee, Va.
ROSEN, Harold G., 1st Lieut., Philadelphia, Camp Davis, N. C.
SAVAGE, Lester Wells, 1st Lieut., Philadelphia, Fort George G. Meade, Md.
SAYLOR, Blair Willard, 1st Lieut., Rockwood, Pa., Camp Grant, Ill.
SCHAAF, Charles Francis, 1st Lieut., Erie, Pa., Camp Grant, Ill.
SCHEIN, Robert Alexander, 1st Lieut., Homestead, Pa., Camp Grant, Ill.
SCHINDLER, Blane Markwood, 1st Lieut., Cumberland, Md., Indiantown Gap Military Reservation, Pa.
SCHINFELD, Louis Harry, 1st Lieut., Philadelphia, Camp Grant, Ill.
SCOTT, Robert James, 1st Lieut., Onancock, Va., Camp Grant, Ill.
SHAFFER, John Francis Regis, 1st Lieut., Pittsburgh, Camp Grant, Ill.
SHARPS, Frank, 1st Lieut., Philadelphia, Camp Grant, Ill.
SHENKIN, Henry Arnold, 1st Lieut., Philadelphia, Camp Grant, Ill.
SILVERSTINE, Leslie Byron, 1st Lieut., Bradford, Pa., Camp Grant, Ill.
SINGLETON, Albert Olin, Jr., 1st Lieut., Philadelphia, Camp Grant, Ill.
STEELE, Ralph Edward, 1st Lieut., Carlisle, Pa., Indiantown Gap Military Reservation, Pa.
STEINBERG, Edgar Irwin, 1st Lieut., Philadelphia, Camp Grant, Ill.
STUTCH, Reuben, 1st Lieut., Pittsburgh, Camp Grant, Ill.
TUFT, Harold Seymour, 1st Lieut., Philadelphia, Camp Grant, Ill.
VILSACK, George Ray, 1st Lieut., Pittsburgh, Camp Grant, Ill.

VOLLMER, Donald Henry, 1st Lieut., Takoma Park, Md., Camp Lee, Va.
WARSHAFSKY, Morton, 1st Lieut., Philadelphia, Camp Grant, Ill.
WEDDELL, James Russell, 1st Lieut., Elizabeth, Pa., Camp Lee, Va.
WELSH, Albert Eugene, Jr., 1st Lieut., Philadelphia, Camp Grant, Ill.
WHILDIN, James Griffith, 1st Lieut., Lansford, Pa., General Dispensary, U. S. Army, Baltimore.
WILCOX, Homer Bowen, Jr., 1st Lieut., Kingston, Pa., Camp Lee, Va.
ZULICH, Philip Diefenderfer, 1st Lieut., Orwigsburg, Pa., Camp Lee, Va.

Orders Revoked

ABRAMOVITZ, Leonard J., 1st Lieut., Baltimore.
CANADA, Charles C., 1st Lieut., Arlington, Va.
DANISH, Jacob Mayr, 1st Lieut., Washington, D. C.
DUFAULT, Leo W., 1st Lieut., Washington, D. C.
FEAR, Jesse G., 1st Lieut., Berwick, Pa.
GILMARTIN, Joseph A., Captain, Pittsburgh.
GRAY, Raymond J., Captain, Pittsburgh.
GREEN, Manuel E., Captain, Pittsburgh.
HARBOLD, Harold Valentine, 1st Lieut., York, Pa.
HEIMBACH, James A., Major, Altoona, Pa.
HOFFMAN, Franklin David, 1st Lieut., Greensburg, Pa.
JONES, Lawrence Paul, Captain, Emporia, Va.
KILLIUS, William J., 1st Lieut., Johnstown, Pa.
KITCHELL, James R., Captain, Bala-Cynwyd, Pa.
LAKATOS, Nicholas R., 1st Lieut., Nanticoke, Pa.
MAFFUCCI, Victor, Jr., 1st Lieut., Everett, Pa.
MAHER, Robert Campbell, 1st Lieut., Leechburg, Pa.
NATHANSON, Leon I., 1st Lieut., Earling, W. Va.
PEARCE, Leroy S., 1st Lieut., Falkner, Miss.
REHER, Charles A., Jr., Captain, Clinton, Pa.
SCHINFELD, Louis Harry, 1st Lieut., Philadelphia.
SHAULIS, Frederick S., 1st Lieut., Indiana, Pa.
SOLOSKO, Alexander, Captain, Salisbury, Pa.
STEINER, Sylvan A., 1st Lieut., Washington, D. C.
WALKER, Gale H., Captain, Polk, Pa.
WATKINS, Evan Lloyd, 1st Lieut., Philadelphia.
WEDDELL, James Russell, 1st Lieut., Elizabeth, Pa.
WINN, Washington C., 1st Lieut., Richmond, Va.
ZEMAN, Erwin Doehren, 1st Lieut., Erie, Pa.

FOURTH CORPS AREA

The following additional medical reserve corps officers have been ordered to active duty by the Commanding General, Fourth Corps Area, which comprises the states of Tennessee, North Carolina, South Carolina, Alabama, Georgia, Mississippi, Florida and Louisiana:

ADAMS, Everett H., 1st Lieut., Rutledge, Ga., Camp Grant, Ill.
ANDERSON, William H., Jr., 1st Lieut., Atlanta, Ga., Fort Bragg, N. C.
ANDERSON, William O., 1st Lieut., Alabama City, Ala., Camp Grant, Ill.
BARKSDALE, Irving S., Captain, Greenville, S. C., Fort Bragg, N. C.
BOAZ, Thurmond D., Jr., 1st Lieut., Shreveport, La., Fort Benning, Ga.
BOLAND, Joseph H., Captain, Atlanta, Ga., Camp Shelby, Miss.
BLACK, Irby Harry, 1st Lieut., Live Oak, Fla., Camp Shelby, Miss.
BLUM, Joseph E., Jr., 1st Lieut., Greenwell Springs, La., Camp Claiborne, La.
BREATH, Marshall Burt, 1st Lieut., New Orleans, Fort Bragg, N. C.
BROWN, Richard K., 1st Lieut., Greenville, S. C., Camp Davis, N. C.
DAVIDGE, Lucious Lamar, 1st Lieut., Shreveport, La., Camp Wheeler, Ga.
DAVIS, Frank M., 1st Lieut., Corinth, Miss., Camp Livingston, La.
DOLAN, Thomas R., 1st Lieut., New Orleans, Camp Claiborne, La.
DONATHAN, Earl Raymond, 1st Lieut., Etowah, Tenn., Fort Bragg, N. C.
ERWIN, J. W., 1st Lieut., Blountville, Tenn., Camp Claiborne, La.
EVANS, Ira C., 1st Lieut., Charleston, S. C., Camp Claiborne, La.
EVANS, Kenneth P., 1st Lieut., Sylacauga, Ala., Fort Oglethorpe, Ga.
FARMER, Joseph Arthur, 1st Lieut., Shelby, N. C., Fort McClellan, Ala.
FERGUSON, William H., Captain, Memphis, Tenn., Fort Bragg, N. C.
GACHET, Fred S., 1st Lieut., Lakeland, Fla., Camp Blanding, Fla.
GESSLER, Carl N., 1st Lieut., McMinnville, Tenn., Fort Benning, Ga.
GLEASON, Albert H., 1st Lieut., Umatilla, Fla., Fort Benning, Ga.
GREEN, Gordon L., 1st Lieut., Rome, Ga., MacDill Field, Fla.
GROVE, Edward W., Captain, Gainesville, Ga., Camp Claiborne, La.
HANKS, James Monroe, 1st Lieut., Anderson, S. C., Fort Bragg, N. C.
HARGIS, Albert S., Jr., 1st Lieut., Birmingham, Ala., Camp Claiborne, La.
HENSON, Thomas A., 1st Lieut., Walstonburg, N. C., Fort Benning, Ga.
HERD, Leslie Phillips, Major, Elizabethton, Tenn., Camp Stewart, Ga.
HICKMAN, Walter B., 1st Lieut., Louisville, Miss., Camp Claiborne, La.
HUDSON, Harry H., 1st Lieut., Cleveland, Tenn., Camp Livingston, La.
HUEY, Thomas Ford, Jr., 1st Lieut., Anniston, Ala., Camp Stewart, Ga.
JACOBS, Sydney, Captain, New Orleans, Camp Shelby, Miss.
JACKSON, James T., 1st Lieut., Montgomery, Ala., Fort Bragg, N. C.
JENKINS, Harry H., Captain, Knoxville, Tenn., Fort Oglethorpe, Ga.
JONES, Clyde T., 1st Lieut., West Jefferson, N. C., Camp Davis, N. C.
KINBERGER, Frank R., 1st Lieut., New Orleans, Fort Jackson, S. C.
LACEY, William H., 1st Lieut., Georgetown, S. C., Camp Davis, N. C.
LEVY, Morton Lee, 1st Lieut., Jonesville, La., Camp Polk, La.
LITTLE, Tom French, 1st Lieut., Tifton, Ga., Fort Benning, Ga.
LOVETT, Raymond E., 1st Lieut., New Orleans, Camp Davis, N. C.
LOWRY, Harvey M., 1st Lieut., Memphis, Tenn., Fort Benning, Ga.
LUCIDO, Joseph L., 1st Lieut., Elkin, N. C., Fort Jackson, S. C.
McCALL, Charles S., Jr., 1st Lieut., Bennetsville, S. C., Fort Benning, Ga.
McPEAKE, William T., Jr., 1st Lieut., Morris Chapel, Tenn., Fort Benning, Ga.
MILLER, Samuel E., Captain, State Park, S. C., Camp Shelby, Miss.
MORTON, John Buck, 1st Lieut., Gray, Ga., Camp Wheeler, Ga.
MUSARRA, Elmer A., 1st Lieut., Marietta, Ga., Fort McPherson, Ga.
NAVE, Dick Donnelly, 1st Lieut., Mountain City, Tenn., Fort Barrancas, Fla.
NEUKOM, George B., 1st Lieut., New Albany, Miss., Fort Benning, Ga.
NEWTON, Isaac James, 1st Lieut., Nashville, Tenn., Camp Wheeler, Ga.
OLIVER, Benjamin M., Jr., 1st Lieut., State Park, S. C., Fort McClellan, Ala.
OWINGS, Francis P., 1st Lieut., Union, S. C., Camp Shelby, Miss.
PALIK, Emil Emery, 1st Lieut., New Orleans, Camp Shelby, Miss.
ROBBINS, Bernard L., 1st Lieut., Miami Beach, Fla., Fort Benning, Ga.
ROBINSON, William J., 1st Lieut., Matthews, S. C., Fort Bragg, N. C.
ROPER, C. James, 1st Lieut., Jasper, Ga., Fort Benning, Ga.
SCHNEIDER, Meyer M., 1st Lieut., Savannah, Ga., Camp Blanding, Fla.
SEAY, Hillis L., Captain, Huntersville, N. C., Camp Shelby, Miss.
SHERER, Raymond J., 1st Lieut., Jasper, Ala., Camp Wheeler, Ga.
SHURE, Irving Isadore, 1st Lieut., Bethel, N. C., Camp Polk, La.
SMITH, Leo, 1st Lieut., Waycross, Ga., Fort Jackson, S. C.
SODEMAN, William A., 1st Lieut., New Orleans, Camp Wheeler, Ga.
SOSKIS, Elbert Joque, 1st Lieut., Mulberry, Fla., Fort Benning, Ga.
SWISHER, Otto Jay, 1st Lieut., Covington, Tenn., Camp Blanding, Fla.
THOMAS, Ford A., Captain, Urania, La., Camp Claiborne, La.
THOMAS, John Henry, 1st Lieut., Gainesville, Fla., Camp Stewart, Ga.
THOMPSON, Charles C., Jr., 1st Lieut., Columbia, Miss., Fort Moultrie, S. C.
TRAPP, Walter Russell, 1st Lieut., Tuscumbia, Ala., Camp Forrest, Tenn.
TURNER, James Dorman, 1st Lieut., Winnsboro, S. C., Fort Jackson, S. C.
VARNER, Claude F., 1st Lieut., Memphis, Tenn., Camp Shelby, Miss.
VON WERSSOWETZ, Odon F. W., 1st Lieut., Chattanooga, Tenn., Camp Blanding, Fla.
WALLIS, Thomas H., 1st Lieut., Ocala, Fla., Fort McPherson, Ga.
WATSON, Francis M., 1st Lieut., Chipley, Fla., Quartermaster's Depot, New Orleans.
WILKINS, William B., 1st Lieut., West Palm Beach, Fla., Camp Wheeler, Ga.
WILLEY, Felix J., Jr., 1st Lieut., New Orleans, Fort Bragg, N. C.
WILLIAMS, Harvey McL., 1st Lieut., Aberdeen, Miss., Camp Wheeler, Ga.
WILSON, Isaac R., Jr., 1st Lieut., Charleston, S. C., Camp Davis, N. C.
WEINSTEIN, Albert, Major, Nashville, Tenn., Fort Oglethorpe, Ga.
WEINSTEIN, Bernard M., Captain, Nashville, Tenn., Camp Livingston, La.
WESTERFIELD, Charles W., 1st Lieut., Augusta, Ga., Camp Livingston, La.
WOOD, Charles S., 1st Lieut., New Orleans, Fort Barrancas, Fla.
WOODS, Harold Vernon, 1st Lieut., Nashville, Tenn., Fort Jackson, S. C.

Orders Revoked

BAUGH, Wendell P., Major, Decatur, Ala.
BOLAND, Joseph H., Captain, Atlanta, Ga.
BOOTH, Thomas Eugene, 1st Lieut., Montgomery, Ala.
BROWN, Randall Gay, 1st Lieut., Graymont, Ga.
CLARK, Arthur Lee, 1st Lieut., Iowa, La.
COX, Marcus Edward, 1st Lieut., Charleston, S. C.
COYLE, Daniel Joseph, Captain, Birmingham, Ala.
EHLERT, William E., 1st Lieut., New Orleans.
GORMAN, John M., Major, Jacksonville, Fla.
HAIK, George M., 1st Lieut., New Orleans.
HILLARD, Irving R., 1st Lieut., Jackson, Tenn.
IMERMAN, Harold M., 1st Lieut., 6th Corps Area.
JACKSON, James T., 1st Lieut., Montgomery, Ala.
JACOBS, Sydney, Captain, New Orleans.
JENKINS, Hughes B., Major, Donalsonville, Ga.
JERNIGAN, Sterling H., 1st Lieut., Atlanta, Ga.
KELLEY, Oscar Lee, 1st Lieut., Raiford, Fla.
KLUGH, George F., Jr., 1st Lieut., Atlanta, Ga.
LAMBETH, Samuel S., III, 1st Lieut., Durham, N. C.
MARTIN, George H., 1st Lieut., Anguilla, Miss.
MASTERS, Elias W., 1st Lieut., Anderson, S. C.
MITCHELL, George J., 1st Lieut., Meridian, Miss.
NEUKOM, George B., 1st Lieut., New Albany, Miss.
PALIK, Emil Emery, 1st Lieut., New Orleans.
PHILLIPS, Herbert S., 1st Lieut., Holly Springs, Miss.
PREVO, Samuel B., 1st Lieut., Memphis, Tenn.
ROYALS, James Lee, 1st Lieut., Meridian, Miss.
SCHAPIRO, Mark Meyer, 1st Lieut., Birmingham, Ala.
SODEMAN, William A., 1st Lieut., New Orleans.
WALKER, Richard H., Jr., Captain, Orlando, Fla.
WILSON, Isaac R., Jr., 1st Lieut., Charleston, S. C.
WOOD, Frank Alton, Captain, Monroe, La.
WORLEY, James Harr, 1st Lieut., Asheville, N. C.

FIFTH CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Fifth Corps Area, which comprises the states of Ohio, West Virginia, Indiana and Kentucky:

ALBERT, Irwin C., 1st Lieut., Cincinnati, Fort Thomas, Ky.
ALLENBACH, Theodore C., Captain, Columbus, Ohio, Fort Hayes, Ohio.
ARMSTRONG, Charles B., 1st Lieut., Cincinnati, Fort Hayes, Ohio.
BENNETT, Willard D., 1st Lieut., Lexington, Ky., Bowman Field, Ky.
BLASSER, Seymour, 1st Lieut., Outwood, Ky., Bowman Field, Ky.
CRONE, John T., Jr., 1st Lieut., Milford, Ohio, Fort Knox, Ky.
DAVIDOW, Sidney L., 1st Lieut., North Jackson, Ohio, Air Base, Fort Wayne, Ind.
DAVIS, Howell J., Captain, Owensboro, Ky., Bowman Field, Ky.
DAVIS, Samuel J., 1st Lieut., Brazil, Ind., Bowman Field, Ky.
DeOREO, Gerard A., 1st Lieut., Cleveland Heights, Ohio, Fort Thomas, Ky.
DOWNING, Robert E., 1st Lieut., Lexington, Ky., Bowman Field, Ky.
DULIN, Basil B., 1st Lieut., Bedford, Ind., Fort Hayes, Ohio.
FANELLI, Walter, Captain, Cleveland, Camp Forrest, Tenn.
FREILICH, Myron A., 1st Lieut., Zanesville, Ohio, Baer Field, Fort Wayne, Ind.
HARPER, EDWARD O., Major, East Cleveland, Ohio, Fort George G. Meade, Md.
HAUSS, John F., 1st Lieut., Celina, Ohio, Air Base, Charlotte, N. C.
HERBST, Mark G., 1st Lieut., Canton, Ohio, Fort Hayes, Ohio.
HICKMAN, Archibald L., Jr., 1st Lieut., Hammond, Ind., Camp Grant, Ill.
HOLMBERG, Robert E., 1st Lieut., Cleveland, Fort Wayne Air Base, Fort Wayne, Ind.
HUNTER, Shelton B., Jr., 1st Lieut., Lexington, Ky., Bowman Field, Ky.
JOHNSTON, Robert L., Captain, Silverton, Ohio, Fort Leonard Wood, Mo.
KENNEDY, Julian C., 1st Lieut., Indianapolis, Bowman Field, Ky.
KESSLER, Morris M., 1st Lieut., Cleveland Heights, Ohio, Fort Hayes, Ohio.
KING, George L., Captain, Alliance, Ohio, Fort George G. Meade, Md.
KISTLER, Victor N., 1st Lieut., Columbus, Ohio, Fort Wayne, Ind.
MARREN, John J., Captain, Lexington, Ky., Fort Knox, Ky.
MECKSTROTH, Paul G., 1st Lieut., New Knoxville, Ohio, Fort McClellan, Ala.
MILLER, Roland E., 1st Lieut., Plymouth, Ind., Fort Leonard Wood, Mo.
MISHLER, Howard V., 1st Lieut., Cleveland, Fort Knox, Ky.
NEARY, Edward P., Captain, Cleveland Heights, Ohio, Fort Knox, Ky.
NEFF, Frank R., Captain, London, Ohio, Fort Wayne, Ind.
PHINNEY, James D., 1st Lieut., Cincinnati, Kelly Field, Texas.
REEDER, Henry H., Captain, Jeffersonville, Ind., Fort Knox, Ky.
ROSSMAN, Phillip L., 1st Lieut., Cleveland, Fort Wayne, Ind.
ROTMAN, Harry G., 1st Lieut., Jasonville, Ind., Fort Knox, Ky.
SAUER, Richard T., 1st Lieut., Dayton, Ohio, Fort Knox, Ky.
SISEK, Henry, 1st Lieut., Youngstown, Ohio, Fort Hayes, Ohio.
SMYERS, Webster C., 1st Lieut., Dayton, Ohio, Fort Hayes, Ohio.
STOLL, William A., 1st Lieut., Louisville, Ky., Camp Shelby, Miss.
STRAUSS, Victor M. B., 1st Lieut., Cincinnati, Fort Wayne, Ind.
VAN HORN, Earl C., 1st Lieut., Springfield, Ohio, Fort Knox, Ky.
VOTYPKA, Edward A., 1st Lieut., Cleveland, Fort Knox, Ky.
VOTYPKA, Joseph A., 1st Lieut., Cleveland, Fort Knox, Ky.
WEBB, Jack G., 1st Lieut., Louisville, Ky., Camp Shelby, Miss.
WEBB, William M., 1st Lieut., Indianapolis, Bowman Field, Ky.
WEISS, Morris, 1st Lieut., Cleveland, Fort Knox, Ky.
ZEITHAML, Carl E., 1st Lieut., Cleveland, Fort Wayne, Ind.

SIXTH CORPS AREA

The following additional medical reserve corps officers have been ordered to extended active duty by the Commanding General, Sixth Corps Area, which comprises the states of Wisconsin, Illinois and Michigan:

ADAMS, Vail B., 1st Lieut., Evanston, Ill., Air Base, Tucson, Ariz.
AHLM, Charles E., 1st Lieut., Chicago, Medical Replacement Training Center, Camp Grant, Ill.
BAUER, Benedict J., 1st Lieut., Detroit, 30th Division, Fort Jackson, S. C.
BERGSTROM, Paul L., 1st Lieut., Kirkland, Ill., 29th Division, Fort Meade, Md.
BERMAN, Benjamin B., 1st Lieut., East St. Louis, Ill., 33d Division, Camp Forrest, Tenn.
BORNSTEIN, Johann S., 1st Lieut., Chicago, Station Complement, Camp Wheeler, Ga.
BRAUDE, Abraham I., 1st Lieut., Chicago, 29th Division, Fort Meade, Md.
BRODSKY, Abraham, 1st Lieut., Manteno, Ill., 9th Station Hospital, Fort McClellan, Ala.
BUNCHMAN, Lester P., 1st Lieut., Clinton, Ill., 33d Division, Camp Forrest, Tenn.
CAMERON, Wayne F., 1st Lieut., Evanston, Ill., 119th Field Artillery, Fort Leonard Wood, Mo.
CHERNER, Abraham M., 1st Lieut., Chicago, 10th Station Hospital, Camp Claiborne, La.
CHRISTIANSON, Oscar O., Captain, Peoria, Ill., 1,608th Corps Area Service Unit (Medical Section), Camp Grant, Ill.
CLIFFORD, Robert P., 1st Lieut., Detroit, 177th Field Artillery, Fort Leonard Wood, Mo.
CONLEY, Raymond H., 1st Lieut., Chicago, Medical Replacement Training Center, Camp Grant, Ill.
DOUGHERTY, Roderick J., 1st Lieut., Chicago, 33d Division, Camp Forrest, Tenn.
EMANUELE, Nicola V., 1st Lieut., Chicago, Station Complement, Camp Davis, N. C.
FEINBERG, Milton, 1st Lieut., Chicago, 191st Tank Battalion, General Headquarters Reserve National Guard, Fort Meade, Md.
FELDMAN, Abraham W., 1st Lieut., Chicago, 33d Division, Camp Forrest, Tenn.
FLEMING, James F., 1st Lieut., Chicago, 10th Station Hospital, Camp Claiborne, La.
FRIEDMAN, Jack, 1st Lieut., Chicago, Station Complement, Camp Polk, La.
GOLLIN, Frank F., 1st Lieut., LaFarge, Wis., 119th Field Artillery, Fort Leonard Wood, Mo.
HOLDEN, David, Lieut. Colonel, Chicago, 182d Field Artillery, Fort Leonard Wood, Mo.
HORODKO, Edward J., 1st Lieut., Chicago, 33d Division, Camp Forrest, Tenn.
HOYT, Arthur W., 1st Lieut., Battle Creek, Mich., 182d Field Artillery, Fort Leonard Wood, Mo.
JONES, Robert R., 1st Lieut., Coal Valley, Ill., 33d Division, Camp Forrest, Tenn.
KARRAS, Samuel J., 1st Lieut., Melrose Park, Ill., 30th Division, Fort Jackson, S. C.
LAM, Francis Lee, 1st Lieut., Battle Creek, Mich., 33d Division, Camp Forrest, Tenn.
LAMPERT, Elmer G., 1st Lieut., Wheaton, Ill., Armored Force Troop Unit, Fort Benning, Ga.
LEMBERG, Louis, 1st Lieut., Chicago, 177th Field Artillery, Fort Leonard Wood, Mo.
LOISELLE, Albert O., 1st Lieut., Chicago, Station Hospital, Fort Sam Houston, Texas.
LORITZ, Anthony F., 1st Lieut., Chicago, 207th General Hospital, Camp Livingston, La.
LOSEFF, Samuel A., 1st Lieut., Chicago, 33d Division, Camp Forrest, Tenn.
MARESH, Everett R., 1st Lieut., Detroit, 33d Division, Camp Forrest, Tenn.
NEWELL, Robert H., 1st Lieut., Oak Park, Ill., Scott Field, Ill.
OBERHILL, Harold R., 1st Lieut., Chicago, 135th Medical Regiment, Camp Shelby, Miss.
OTTENSTEIN, Harold H., 1st Lieut., Milwaukee, Replacement Center Infirmary, Camp Grant, Ill.
PERKINS, Robert D., 1st Lieut., Moline, Ill., 106th Cavalry, Camp Livingston, La.
RANNEY, Alden B., 1st Lieut., Oak Park, Ill., 33d Division, Camp Forrest, Tenn.
SCOTT, Wilbert E., Jr., 1st Lieut., Chicago, Medical Replacement Training Center, Camp Grant, Ill.
STANLEY, Sherburn M., 1st Lieut., Detroit, 177th Field Artillery, Fort Leonard Wood, Mo.
WAGLEY, Perry V., Captain, Pontiac, Mich., U. S. Army Induction Station, Milwaukee.
WALGER, William D., 1st Lieut., Ashley, Ill., 135th Medical Regiment, Camp Shelby, Miss.
WESCOTT, Royal J., 1st Lieut., Marquette, Mich., 182d Field Artillery, Fort Leonard Wood, Mo.
WASSERMAN, Reuben R., 1st Lieut., Chicago, 27th Division, Fort McClellan, Ala.
WILLIAMS, William R., 1st Lieut., Riverside, Ill., Station Complement, Camp Davis, N. C.

Orders Revoked

ALLISON, Olaf W., 1st Lieut., Danville, Ill., 27th Division, Fort McClellan, Ala.
BUCKLEY, Clarence H., Captain, Menomonee, Wis., 10th Station Hospital, Camp Claiborne, La.
CRANE, Wesley T., 1st Lieut., Northbrook, Ill.
HILL, Edward L., 1st Lieut., Jacksonville, Ill.
HUBBLE, William F., Jr., 1st Lieut., Decatur, Ill.
JANA, Joseph T., 1st Lieut., Berwyn, Ill., 29th Division, Fort Meade, Md.
JANSON, Carl H., 1st Lieut., Homewood, Ill., 33d Division, Camp Forrest, Tenn.
LARRABEE, Walter F., Jr., 1st Lieut., Chippewa Falls, Wis., Station Complement, Camp Wheeler, Ga.
McRAE, Louis A., 1st Lieut., Houston, Texas, 135th Medical Regiment, Camp Shelby, Miss.
MALOOF, George J., 1st Lieut., Madison, Wis., 135th Medical Regiment, Camp Shelby, Miss.
MAXWELL, James H., 1st Lieut., Detroit.
PFEFFER, Isadore S., 1st Lieut., Eloise, Mich., 33d Division, Camp Forrest, Tenn.
RICHARDS, Ned W., 1st Lieut., Saginaw, Mich., Station Complement, Camp Davis, N. C.
ROSEN, Benjamin B., 1st Lieut., Chicago.
ROYCE, Grant E., 1st Lieut., Harvard, Ill., U. S. Army Induction Station, Milwaukee.
SLAYBAUGH, James C., Captain, Milwaukee.
WEIDNER, Morris R., 1st Lieut., Dolton, Ill.
WILLIAMS, William R., 1st Lieut., Riverside, Ill.

ORGANIZATION SECTION

MEDICAL LEGISLATION

DISTRICT OF COLUMBIA

Changes in Status.—H. R. 4599 has passed the House and has been reported to the Senate, authorizing the Federal Security Administrator to accept gifts for St. Elizabeths Hospital and to provide for the administration of such gifts. H. R. 4660 has passed the House and has been reported to the Senate, amending an act providing aid to needy blind persons of the District of Columbia by authorizing the expenditure of funds for necessary burial expenses of such persons who while living were receiving aid under the act. H. R. 4498 has passed the House and is pending in the Senate with a favorable committee report, authorizing the Federal Security Administrator to admit to St. Elizabeths Hospital in the District of Columbia, for treatment, certain officers, clerks and employees in the foreign service who have been legally adjudged insane in any foreign country and with respect to whom it has been impossible to establish a legal residence in one of the states, territories or the District of Columbia. The bill provides that at the request of any such patient, his relatives or friends, a hearing shall be held in the District Court of the United States for the District of Columbia on his mental condition and on the right of the superintendent of St. Elizabeths Hospital to hold him for treatment.

MEDICAL ECONOMIC ABSTRACTS

NEW LOW DEATH RATE

According to the statisticians of the Metropolitan Life Insurance Company the 1941 January-June mortality experience of the company's industrial policyholders set a new low death rate record of 8 per thousand for the first six months of 1941. From present indications it seems likely that the rate for the full year will be among the lowest in the company's history.

Among the respiratory diseases, pneumonia mortality for the first six months of this year declined 13.2 per cent below the rate for the corresponding period of 1940, while the tuberculosis rate of 44.8 per hundred thousand is the lowest of any January-June period.

One of the most "satisfactory" features of the 1941 half year record is the continued decline in maternal mortality, for which the death rate this year was slightly lower than in 1940 and only a little more than half that of 1935. And this was in spite of the fact that the marriage rate is up and the number of births has increased materially.

The statisticians declare that the "only really disturbing element in the mortality record for the first half of 1941 is the high incidence of fatal accidents, particularly motor vehicle accidents, mortality from which was 26.1 per cent higher than in the corresponding period of 1940.

THE INDUSTRIAL MEDICAL SERVICE OF THE STANDARD OIL COMPANY OF NEW JERSEY AND AFFILIATED COMPANIES

Neglect of employee absenteeism from preventable sickness or accident is not regarded as sound business by many large corporations. The widespread activities of the 23 year old medical department of the Standard Oil Company of New Jersey exemplify to what extent preventive industrial medicine has been accepted as indispensable by enlightened management.[1] The company operates in the United States, Europe, the East and West Indies and South America. It requires medical personnel and facilities, as indicated in table 1.

The services of medical examiners who operate on a fee basis are needed mainly to investigate the physical qualifications of candidates for employment in areas where concentrations of employees are insufficient to justify the appointment of full time physicians and to provide for direct medical or surgical service for industrial accidents or occupational disease. In the tropics thirty-two hospitals are maintained to accommodate the medical, surgical and obstetric requirements of employees and their families. Elsewhere employees must consult their own family physicians for any form of treatment. Altogether this industrial medical service touches in some manner the physical welfare of 186,344 people engaged in the production, transportation and sale of petroleum products.

TABLE 1.—*Medical and Other Facilities*

Full time physicians	109
Part time physicians	28
Dentists	2
Registered nurses	101
Other medical personnel	400
Medical examiners (fee basis)	1,010
Hospitals	32
Hospital beds	1,041

Under this system an administrative formula has been developed which works well in any location. Local adjustments are necessary to meet the requirements of climate, terrain, racial strains, unusual working conditions or specific occupational exposures. As in all soundly conducted industrial medical departments, principal reliance rests on placement and periodic health examinations, prophylaxis, sanitation, and the maintenance and proper interpretation of medical records and statistics. From its own statement, the company bases its evaluation of medical trends and results on every case of lost time disability lasting one or more calendar days. This is a rare and increasingly valuable depository of clinical information. The regular analysis of these records ought to be made widely available to the general profession as well as to industrial physicians. The company statisticians have determined that the average days of disability for each one of their own employees in the United States is six and thirty-one one-hundredths calendar days, considerably under the usually recorded figure of eight plus days for all American industry. As might be

TABLE 2.—*Frequency of Sickness and Injuries*

	Number of Employees	Frequency Rates per 1,000 Employees Per Annum					
		Total	Sickness	Non-industrial Injuries	Industrial Injuries	Noneffective Rates	Death Rates
United States	30,815	574.62	543.24	22.20	9.18	17.29	3.00
Europe	3,924	333.84	295.36	18.60	19.88	14.84	2.29
Tropics	37,083	479.08	412.99	22.62	43.47	11.59	2.54
Total	71,822	512.14	462.45	22.22	27.47	14.21	2.98

1. The Medical Bulletin of the Standard Oil Company (New Jersey) and Affiliated Companies, vol. 5, no. 1, June 1941.

expected, industrial injury rates have been regularly decreasing in this same group of employees. Sickness disability, however, has regularly increased for the past five years or more. One reason has been the increased incidence of common colds and influenza, a situation noted even in the group of employees working in the tropics. There are other more obscure causes, related to liberalization of sickness benefit plans, labor unrest and general apprehension resulting from world disturbances. Another curious and unexplained statistical result is the higher incidence of appendicitis in our own Southwest. An epitomized statistical summary is itemized in table 2. The column headed "Noneffective Rates" refers to the average daily number of disabled employees per thousand. This method of estimating economic loss resulting from sickness and injury is considered to be more useful than frequency rates alone.

A good share of investigation is directed at problems in sanitation and tropical medicine, especially malaria and amebiasis. Additional observations are being made on the effect of influenza vaccine on volunteers. A systematic study is in progress of 800 employees with hypertension on whom accurate medical records have been maintained for twenty years.

These facts and relationships about one of the large industrial organizations of the world were displayed in exhibit form at the recent annual session of the American Medical Association in Cleveland. Perhaps if other similar organizations would do likewise the general profession would obtain a far better realization of the modern objectives of industrial health.

MISSOURI GROUP HOSPITAL SERVICE

According to a report on five years of operation, the Group Hospital Service of Missouri is "the first community voluntary service plan to be inaugurated by a medical society in cooperation with the hospitals." It also claims to have established, during these five years, reserves which are among the three highest in the country and "to be the first to serve rural areas through a State Farm Bureau Federation."

The principal shortcoming at this time, according to the report, is the need of an even lower cost plan to reach the more limited and less privileged income group of workers. A committee of the trustees is at work and will present findings to the trustees in due course. In this way it is hoped to reach the great percentage of American workers earning less than $1,200 annually.

Comparing the fiscal years 1939-1940 and 1940-1941, there has been an increase of 58 per cent in assets and 51 per cent in membership, while administrative costs have decreased from 15.1 per cent to 13.2 per cent. There has been a slight rise in the number of days of hospitalization per member year after the member has been in the plan for three years, and a general rise in the percentage of the income paid for maternity care. The report classifies all diseases hospitalized by average hospital days and amounts paid by Group Hospital Service.

WOMAN'S AUXILIARY

Georgia

The Woman's Auxiliary to the Georgia Medical Society held a recent meeting at the home of Mrs. J. H. Pinholster in Savannah, Mrs. J. C. Metts presiding. A report from the Christmas card chairman, Mrs. J. E. Porter, showed a profit of $49.79 from the sales.

It was decided that the health committee and public relations committee place the pamphlet "Priceless Heritage" in beauty parlors and other suitable public places.

W. W. McCune, assistant school superintendent, gave an illustrated talk on "Our Health Program."

The Woman's Auxiliary to the Baldwin Medical Society held a recent meeting at the home of Mrs. C. B. Fulghum. Dr. J. R. Litton gave a talk on public health work. It was announced that members will contribute books and magazines to the Baldwin Blues' reading room.

Illinois

The Bureau county auxiliary held a joint meeting at Princeton with the auxiliary of the North Central Illinois Medical Association. The program, of which Mrs. M. A. Nix was chairman, opened with a tea at the Nix home. Dinner was served at the Presbyterian Church, after which Mrs. H. J. Dooley spoke on "The Aims of the Auxiliary," and Dr. Harold Camp, secretary to the Illinois State Medical Society, talked on "What the Auxiliary Can Do to Help Medicine."

Michigan

The project for the year of auxiliary to the Grand Traverse-Benzie-Leelanau Medical Society was a drive for funds for an iron lung to be donated to Munson Hospital. The drive was successful; they purchased an iron lung, costing $1,500, and an infant respirator for the hospital, at a cost of $375, and had some funds left.

The members of the auxiliary to the Ingham County Medical Society entertained their husbands with a Bohemian feast which preceded the yearly Keno Party of the society. This event has been enjoyed for several years and receives enthusiastic support.

Oregon

The Woman's Auxiliary to the Multnomah County Medical Society met recently with fifty-six members present. Dr. Edward Hume of the National Christian Mission spoke on "Religion and Health." Later Mr. W. Jay Smith, president of the Oregon Wild Life Federation, addressed the group on "Conservation of Wild Life in Oregon." A movie entitled "The Polluted Willamette" was shown.

Pennsylvania

At a meeting of the Allegheny County auxiliary the membership chairman, Mrs. Joseph Soffel, presented the names of sixteen new members. The past president of the state society, Dr. Charles H. Henninger, talked on "Medical Preparedness." The remainder of the afternoon program was a musicale by Matilde McKinney, pianist of the Pittsburgh Symphony Orchestra.

Texas

Bowie-Miller counties auxiliary met recently at the home of Mrs. Roy F. Baskett, Texarkana, with Mrs. Tyson presiding.

Dr. Preston Hunt, president of the state medical association, spoke on "How the Auxiliary Serves the Medical Profession." Dr. W. W. Bauer of the Bureau of Health Education of the American Medical Association addressed several groups in Texarkana, February 11, under the auspices of the auxiliary: Texarkana Rotary Club, Texarkana College Assembly, Arkansas High School Assembly and a public meeting at the Congregational Church. Dr. Bauer's appearance in Texarkana under the auspices of the auxiliary was in celebration of Doctor's Day. Members of the committee in charge of this function were Mmes. Ralph Cross, Roy Baskett, Harry Murry, William Hibbitts, H. E. Longino, S. A. Collom Jr., J. T. Robison, W. Decker Smith and Reavis Pickett. Mrs. Collom was general chairman of arrangements for Doctor's Day.

CORRECTION

Honorary Members.—At the recent annual meeting of the Woman's Auxiliary to the American Medical Association in Cleveland, the auxiliary voted to confer honorary membership on Mrs. Samuel Clark Red, Houston, Texas; Mrs. Franklin P. Gengenbach, Denver; Mrs. John O. McReynolds, Dallas, Texas, and Mrs. Willard C. Bartlett, St. Louis. The name of Mrs. V. E. Holcombe, Charleston, W. Va., was erroneously included in this list when published in THE JOURNAL July 12, page 125.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Human Case of Plague.—A fatal human case of plague has been reported in Siskiyou County, with onset on June 14 and death on June 26. The disease was reported in a 10 year old boy residing near Montague. The diagnosis was confirmed bacteriologically. According to *Public Health Reports*, July 4, the source of the infection has not been determined, but it is believed to have been ground squirrels.

COLORADO

Personal.—Dr. George W. Miel, for forty-seven years a member of the staff of St. Anthony's Hospital, Denver, was honored at a banquet and celebration in the nurses' home at the hospital recently in recognition of his long service.

State Furnishes Sulfathiazole for Gonorrhea. — The division of venereal disease control of the state department of health has made available to all physicians in the state free drugs for the treatment of medically needy patients infected with gonorrhea. Sulfathiazole will be distributed in individual bottles of fifty tablets on request by any physician who reports a case of gonorrhea on the regular confidential report card.

CONNECTICUT

Annual Clinical Congress.—The seventeenth clinical congress of the Connecticut State Medical Society will be held at the Sterling Law Buildings, New Haven, September 16-18. The following out of state speakers are on the program:

Dr. Frank H. Lahey, Boston, President of the American Medical Association, Estimation and Management of the Bad Surgical Risk Case.
Dr. Oscar F. Cox, Boston, Treatment and Nationwide Control of Gonococcal Infections.
Dr. Emil Novak, Baltimore, Female Hormones in Clinical Medicine.
Drs. James L. Poppen and Gilbert E. Haggart, Boston, The Best Method of Examining a Back.
Dr. Robert H. Kennedy, New York, Treatment of Fresh Wounds: Chemotherapy, Closed Plaster, etc.
Dr. Eli Jefferson Browder, Brooklyn, Immediate Treatment of Head Injuries.
Dr. Yale D. Koskoff, Pittsburgh, Demonstration of Essentials of a Neurological Examination for the General Practitioner.
George St. J. Perrott, Bethesda, Md., Physical Defects in the General Population.
Dr. Irvine H. Page, Indianapolis, Hypertension.
Dr. Ernst P. Boas, New York, Predisposing Factors in Myocardial Infarction.
Dr. Samuel A. Levine, Boston, Modern Treatment of Congestive Heart Failure.
Dr. Frank D. Lathrop, Boston, Recent Developments in the Treatment of Deafness.
Dr. Burrill B. Crohn, New York, Diagnosis and Treatment of Bleeding from the Stomach.
Dr. Thomas Francis Jr., New York, Treatment of Virus Infections.
Dr. Grantley W. Taylor, Boston, Mouth Tumors.
Dr. Matthew Walzer, Brooklyn, Gastrointestinal Allergy.
Dr. Jerome P. Webster, New York, Modern Treatment of Burns.

A feature will be the special course in traumatic surgery to be given under the direction of Dr. Samuel C. Harvey, William H. Carmalt professor of surgery, Yale University School of Medicine. It will begin during the congress and continue at weekly intervals until completed.

FLORIDA

Changes in Health Officers.—Dr. Jack B. Eason, director of the maternal and child health division of the Arizona State Board of Health, Phoenix, has been appointed director of the Lake County Health Department, succeeding Dr. Arthur W. Newitt, Tavares, who has been named director of the bureau of local health service of the state board of health, it is reported.

Special Society Elections.—Dr. Sherman B. Forbes, Tampa, has been elected president of the Florida Society of Ophthalmology and Otolaryngology, succeeding Dr. Hermon Marshall Taylor, Jacksonville. Other officers include Drs. Shaler A. Richardson, Jacksonville, vice president, and Carl E. Dunaway, Miami, secretary-treasurer. Dr. Wiley M. Sams, Miami, was elected president of the Florida Association of Dermatology and Syphilology and Dr. Lauren M. Sompayrac, Jacksonville, reelected secretary. Officers chosen by the Florida Association of Industrial Surgeons were Drs. Frank D. Gray, Orlando, president-elect; George Frederick Oetjen, Jacksonville, president; William G. Harris, Jacksonville, vice president, and Kenneth A. Morris, Jacksonville, secretary. The Florida Radiological Society elected the following officers: Drs. John N. Moore, Ocala, president; Elliott M. Hendricks, Fort Lauderdale, vice president, and Walter A. Weed, Orlando, secretary.

GEORGIA

Personal.—Dr. Frank K. Boland, Atlanta, was elected president of the Emory University Alumni Association at the annual meeting in June, and Benjamin T. Carter, D.D.S., Atlanta, and Dr. Harold J. Starr, Chattanooga, Tenn., were elected vice presidents.

Prize Winning Papers. — The Fulton County Medical Society, Atlanta, announces that the following papers have been given cash awards in the 1941 competition. Both were submitted from Grady Hospital. First prize of $20 went to Drs. Harry H. Clemons and H. Stephen Weens for their work on "Staphylococcic Pneumonia in Infants: Occurrence of Pneumopyothorax," and second prize of $10 to Drs. Abraham S. Velkoff and Robert F. Mabon for "Reliability of the Fishberg Concentration Test in Normal Pregnancy and the Puerperium."

ILLINOIS

Typhoid Outbreak.—Eight cases of typhoid were reported to the state health department from DuQuoin between July 7 and August 1. The source of the outbreak had not been determined at the time of the report.

Epidemiologist for State Institutions.—Dr. Arnold M. Cohn, district health superintendent in charge of Christian, Fayette, Effingham, Montgomery and Shelby counties with headquarters at Pana, has been appointed to the newly created position of communicable disease consultant and epidemiologist from the department of public health to the eighteen institutions under the state department of public welfare.

Incubators Available for Loan. — Two hundred metal incubators for the care of premature babies are now available on loan throughout the state. They were built at the request and under the supervision of the state department of public health by the Springfield Work Experience Center of the National Youth Administration and will be placed in each of the state's twenty-one district health offices, ready for speedy emergency use in supplementing the permanent incubator facilities of hospitals. Among the 4,464 infant deaths reported in Illinois in 1939 nearly a third, 1,431, were attributed directly to premature birth.

Chicago

Course in Pediatrics.—The Children's Memorial Hospital will sponsor a graduate course in pediatrics, October 13-November 8. The work will be at the hospital with the exception of one afternoon a week at the Municipal Tuberculosis Sanitarium and one period a week in the contagious department of Cook County Hospital. The course is intended for general practitioners and for those especially interested in pediatrics. The fee will be $100. Registration should be made at least one month before entrance if possible and should be accompanied by a $10 deposit. The deposit will apply on the fee and will be refunded if the applicant is unable to take the course. Information may be obtained from the Children's Memorial Hospital, 707 Fullerton Avenue, telephone Diversey 4040.

INDIANA

Personal.—Dr. Robert B. Sanderson, since 1932 superintendent of Healthwin Hospital, near South Bend, has resigned. Dr. Edward W. Custer, assistant medical director of the state tuberculosis sanatorium at Hamburg, Pa., was named his successor, effective August 1.——Dr. Robert E. Jewett, Wabash, has been appointed assistant chief of the bureau of maternal and child health in the state board of health in Indianapolis. Dr. Jewett was formerly in charge of maternal and child health services in the state health department of Maine and recently took a degree in public health at the University of Michigan. —— Dr. Wesley M. Hall, Rising Sun, has been appointed to succeed the late Dr. George H. Hansell, Rising Sun, as health commissioner of Ohio County.

IOWA

Interstate Malaria Conference.—The Interstate Malaria Survey, organized in 1939 by health officers and sanitary engineers of the upper Mississippi River basin states in collaboration with the U. S. Public Health Service, held a conference in Davenport on July 23. This group has studied various aspects of the malaria problem and is planning a campaign for the elimination of mosquito-breeding swamps and conditions that permit mosquitos to thrive, it was said. A feature of this year's discussions was consideration of sewage disposal plants. Dr. Walter L. Bierring, Des Moines, health officer of Iowa, is chairman of the group. The states represented are Minnesota, Wisconsin, Illinois, Iowa, Missouri and Indiana.

KANSAS

State Board Election.—Dr. Mirl C. Ruble, Parsons, was elected president of the Kansas State Board of Medical Registration and Examination at its annual meeting in Kansas City, June 17, and Dr. John F. Hassig, Kansas City, was reelected secretary. Other members of the board are Drs. Henry E. Haskins, Kingman; James E. Henshall, Osborne; Chester E. Joss, Topeka; Omar L. Cox, Iola, and Ralph G. Ball, Manhattan.

Society News.—Drs. Charles K. Shofstall and Charles C. Dennie, Kansas City, Mo., addressed the Golden Belt Medical Society, July 10, in Manhattan on "Routine Office Procedure for Treatment of the More Common Pharyngeal and Nasal Conditions" and "Dermatoses in Infants and Children" respectively.——Dr. Vern L. Pauley, Wichita, addressed the Cowley County Medical Society, June 19, in Arkansas City on "Treatment of the Prostate Gland" and Dr. Charles T. Moran, Arkansas City, on "Masking of Symptoms Caused by Sulfanilamide in Mastoid Disease."——Drs. Arthur W. Corbett and David R. Davis, Emporia, discussed appendicitis in adults and children, respectively, before the Lyon County Medical Society in Emporia, July 1.—— Drs. Abraham E. Hiebert and Joseph V. Van Cleve, Wichita, addressed the Pratt County Medical Society, June 27, in Pratt on "Burns" and "Diagnosis and Treatment of the Commoner Skin Ailments" respectively.—— Drs. Henry N. Tihen and Fred J. McEwen, Wichita, addressed the quarterly meeting of the Southeast Kansas Medical Society in Altamont, June 18, on "Therapy in Gastrointestinal Diseases" and "Cardiac Emergencies and Their Treatment" respectively.——Speakers at a meeting of the Sumner County Medical Society in Wellington, June 19, were Drs. Ray A. West, Wichita, on "Toxemias of Pregnancy" and "The Role of Anesthetics and Analgesias in Obstetrics" respectively.

KENTUCKY

Personal.—Dr. Lenore V. L. Patrick, Williamstown, has resigned as health officer of Grant County to take a position as pediatric consultant to the Wisconsin State Board of Health in Madison.——Dr. Adam Stacy Jr., Pineville, has resigned as health officer of Bell County to enter private practice.——Dr. Joseph Scott Goodpaster, Owingsville, has resigned as health officer of Bath County to enter private practice, and the health unit has been discontinued.

LOUISIANA

Society News.—The Orleans Parish Medical Society was addressed, July 14, by Drs. Gilbert C. Anderson and Noah Leon Hart on "Intracranial Foreign Bodies—Review of Literature, Case Report"; Carlo J. Tripoli and Richard E. Selser, "Newer Developments in the Treatment of Cerebrospinal Fever," and William H. Harris and Herbert J. Schattenberg, "Anlage Tumors of the Lung: Their Protean Histological Patterns in Bronchiogenic Neoplasia."

MICHIGAN

Society News.—Dr. William H. Alexander, Iron Mountain, was named president-elect of the Upper Peninsula Medical Society and Dr. Richard A. Burke, Palmer, became president at the annual meeting in Ironwood, July 17-18.—— Dr. Henry Cook, Flint, discussed "Industrial Health and the General Practitioner" before the Muskegon County Medical Society in Muskegon, June 20.

Professor Appointed.—Dr. Ivan B. Taylor, Philadelphia, has been appointed professor of anesthesia at Wayne University College of Medicine, Detroit. Dr. Taylor graduated from the University of Michigan Medical School, Ann Arbor, in 1932 and later was instructor in anesthesia at the University of Wisconsin Medical School, Madison. Recently he has been anesthetist at the Pennsylvania Hospital, Philadelphia.

Changes in Health Officers. — Dr. Sidney I. Franklin, director of health in Butler County, Ky., has been appointed in charge of the district health unit covering Mackinac and Luce counties with offices in Newberry.—— Dr. Otto K. Engelke, Marshall, has been appointed director of the district health unit in Washtenaw County, with offices in Ann Arbor.——Dr. David J. Sobin has been appointed health officer in Carsonville, where he has been practicing medicine.

Dr. Muehlberger to Head State Crime Laboratory.—The Michigan Department of Health has established a crime detection laboratory in cooperation with the Michigan State Police with Clarence W. Muehlberger, Ph.D., Chicago, coroner's toxicologist for Cook County, Ill., as director. The new unit will be in two divisions, one in the health department's bureau of laboratories, where the work in toxicology will be carried on, and the other, a ballistics laboratory, in state police headquarters in East Lansing. In addition to the investigations for the detection of crime, the laboratory will make studies of the causes of occupational diseases in cooperation with the bureau of industrial hygiene. Dr. Muehlberger received the degree of doctor of philosophy at the University of Wisconsin, Madison, in 1923 and was on the faculty of the university from 1920 to 1930. He has been associate professor of pharmacology and toxicology at Northwestern University since 1930 and has also lectured on toxicology at the University of Illinois College of Medicine and the University of Chicago.

MINNESOTA

Personal. — Dr. Ernest M. Kingsbury, Clearwater, has recently been named chief medical officer at the state reformatory at St. Cloud; he will continue his Clearwater practice, maintaining evening office hours there.——Dr. Russell R. Hendrickson, Wabasha, has been named superintendent and medical director at Sand Beach Sanatorium, Lake Park, succeeding Dr. Leon H. Flancher, resigned.—— Dr. James Lawrence McLeod, Grand Rapids, took office, July 1, as a district governor of Rotary International.

Faculty Changes at the University.—Dr. Clarence M. Jackson, professor and head of the department of anatomy at the University of Minnesota Medical School, Minneapolis, since 1913, retired at the end of the school year and was made professor emeritus. Dr. Jackson, who first became associated with the school in 1900 as assistant professor of anatomy, became professor in 1902 and head of the department in 1913. In addition he served as dean from 1909 to 1913 and was acting dean of the graduate school in 1917-1918 and in 1925. A committee consisting of Edward A. Boyden, Ph.D., chairman, Andrew T. Rasmussen, Ph.D., and Hal Downey, Ph.D., has been appointed to administer the department for the coming year. Dr. Horace Newhart, professor of otolaryngology and director of the division of otology, rhinology and laryngology, has resigned to devote his time to private practice and Dr. Lawrence R. Boies, clinical associate professor of ophthalmology and otolaryngology, has been appointed director of the division. Dr. Newhart had been associated with the faculty since 1912. Other retirements were those of Drs. James Frank Corbett as clinical professor of surgery, Walter R. Ramsey as clinical associate professor of pediatrics, Harry P. Ritchie as clinical professor of surgery, Orianna McDaniel as clinical associate professor of preventive medicine and public health, and Anton G. Wethall as clinical assistant professor of urology. Dr. Charles A. Reed, associate professor of orthopedic surgery, also resigned to devote full time to private practice.

MISSOURI

Advisory Committee Named to Recommend Health Appointees. — A representative health and hospital advisory committee was recently appointed by Mayor Becker of St. Louis to obtain recommendations for appointments to major health, hospital and institutional positions, newspapers reported on June 22. Members of the committee include:

Dr. Joseph C. Peden, president, St. Louis Medical Society.
Alphonse M. Schwitalla, S.J., dean of the St. Louis University School of Medicine.
Dr. Frank R. Bradley, superintendent of Barnes Hospital.
Philip A. Shaffer, Ph.D., dean, Washington University School of Medicine.
H. J. Mohler, president, St. Louis Hospital Council.
Dr. Arthur N. Vaughn, president of the National Medical Association.

Society News.—Dr. Stanley F. Hampton, St. Louis, addressed the St. Francois-Iron-Madison-Washington-Reynolds Counties Medical Society in Farmington, June 27, on "Allergy in Relation to General Practice."——The Buchanan County Medical Society was addressed in St. Joseph, June 4, by Drs. James O'Donoghue on "Osteochondritis (Nonsuppurative Epiphysitis)" and Gaylord T. Bloomer, "Treatment for Epiphysitis." Both are of St. Joseph.

NEW YORK

Lake Keuka Meeting.—The summer meeting of the Lake Keuka Medical and Surgical Association was held, July 10-11, at the Keuka Hotel on Lake Keuka. The speakers included:

Dr. Louis Faugeres Bishop Jr., New York, Senile Heart; Observations, Prognosis and Management.
Dr. Lee Adrian Whitney, Rochester, Modern Management of Fractures.
Dr. John W. Norcross, Boston, Hematology from a General Practitioner's Point of View.
Dr. James E. King, Buffalo, Pruritus Vulvae.
Dr. Donald Guthrie, Sayre, Pa., Preoperative Care of Toxic Goiter Patient.

Dr. Leon M. Kysor, Hornell, is president of the association, Dr. Noble R. Chambers, Syracuse, vice president and Dr. Virgil H. F. Boeck, Dundee, secretary.

New York City

Hospital News.—The psychiatric service of Lebanon Hospital has been reorganized with Dr. William V. Silverberg in the newly created position of associate in psychiatry and also as chief of the mental hygiene clinic.——Mr. Homer Wickenden, formerly general director of the United Hospital Fund, has been appointed assistant director of the New York Medical College, Flower and Fifth Avenue Hospitals.

Friday Afternoon Lectures.—The Medical Society of the County of Kings has announced its fall series of Friday afternoon lectures. The program for October is as follows:

October 3, Dr. Burrill B. Crohn, The Present Concept of Colitis and Its Management.
October 10, Dr. Alfred H. Iason, Hernia.
October 17, Dr. George A. Sheehan, The Approach to Differential Diagnosis of Medical Conditions.
October 24, Dr. Simon R. Blatteis, Recent Concepts of Rickettsial Diseases: Endemic Typhus, Its Diagnosis and Treatment.
October 31, Dr. Arthur C. DeGraff, Recent Advances in Digitalis Therapy with Particular Attention to the Use of Pure Glycosides.

Postgraduate Courses in Clinical Medicine.—During the coming year Mount Sinai Hospital will present postgraduate courses in clinical medicine in cooperation with Columbia University College of Physicians and Surgeons. One series of part time courses on various topics will be offered from October 27 to December 20. Preceding these October 6 to 10 there will be an intensive full time course on syphilis. A second series will be presented from February 2 to March 28, 1942. In addition three full time courses of four weeks each will be offered in the spring: cardiovascular diseases, April 6 to May 2; gastroenterology, April 6 to May 2, and internal medicine, May 4 to 29. Requests for information should be addressed to the Secretary for Medical Instruction, Mount Sinai Hospital, Fifth Avenue and 100th Street, New York.

Appointments at New York University.—Dr. Colin M. MacLeod, an associate of the Rockefeller Institute for Medical Research, has been appointed professor of bacteriology and director of the bacteriologic laboratories at the New York University College of Medicine. He succeeds Dr. Thomas Francis Jr., who resigned to become professor and head of the department of epidemiology at the new University of Michigan School of Public Health in Ann Arbor. Alwin M. Pappenheimer Jr., Ph.D., assistant professor of biochemistry in bacteriology, University of Pennsylvania School of Medicine, Philadelphia, has been appointed assistant professor of bacteriology. Dr. Frank C. Combes, New Rochelle, associate professor of dermatology and syphilology, has been made full professor, and Dr. James A. Shannon, formerly assistant professor of physiology, has been made assistant professor of medicine and director of the research services on the university's division at the Welfare Hospital for Chronic Diseases.

OHIO

Society News.—Dr. James C. Walker, Dayton, addressed the Greene County Medical Society, Xenia, June 12, on "Treatment of Fractures of the Neck of the Femur."——Dr. Ray W. Kissane, Columbus, spoke on "Cardiac Contusion" at a meeting of the Marion Academy of Medicine, Marion, in June.——Dr. Edward O. Harper, Cleveland, addressed the Portage County Medical Society, Ravenna, June 19, on "The Hysterias."——Speakers who addressed the Adams County Medical Society, Manchester, June 18, were Drs. Edward S. Jones, Erie, Pa., on "The Tuberculosis Patient, the Diagnosis, Treatment and Prognosis"; Joseph E. Pirrung and Elmer A. Schlueter, Cincinnati, on "Ulcers and Cancer of the Stomach."

PENNSYLVANIA

Society News.—The Pittsburgh Pediatric Society held a meeting in connection with a "pediatric clinic day" at the Windber Hospital, Windber, June 25. The speakers were Drs. Hyman A. Slesinger, Windber, on "Allergy in Childhood"; Elwood W. Stitzel, Altoona, "Schüller-Christian Disease"; Harold Antiles, Brooklyn, "Undulant Fever" and Paul J. McGuire, Homestead, "Diagnosis of Whooping Cough."

Philadelphia

Personal.—Dr. Alexander J. Steigman, formerly of the staff of the Children's Hospital and the department of pediatrics of the University of Pennsylvania School of Medicine, has left for England to join the American Red Cross-Harvard University Hospital for Infectious Diseases.——Dr. Claude P. Brown, formerly director of the biologic laboratories of the National Drug Company, has been appointed assistant director of the Pennsylvania State Board of Health Laboratories in Philadelphia.

Centennial Celebration of Mental Disease Department.—The department for mental and nervous diseases of the Pennsylvania Hospital held a centennial celebration in June in commemoration of the opening in 1841 of a new building for the mental patients of the hospital. A public meeting and reception were held in the department with addresses by David E. Williams Jr., president of the board of managers; Drs. Lauren H. Smith, physician in chief and administrator; Earl D. Bond, director of research, and Edward A. Strecker, consultant in chief. A medical meeting with papers by the psychiatric staff was also a feature. Pennsylvania Hospital, founded in 1751, is said to have been one of the first hospitals to care for mentally ill patients with the same consideration as shown to the physically ill. Dr. Benjamin Rush, who has been called the "father of American psychiatry," was one of its early physicians in chief.

TENNESSEE

New Health Officers.—Dr. W. D. Burkhalter, associate director of county health work in the state department of health of Alabama, Montgomery, has been appointed health officer of Shelby County with headquarters in Memphis. He succeeds Dr. Robert D. Hollowell, who has gone to St. Petersburg, Fla., as health officer of Pinellas County. Dr. Goldsborough Foard McGinnes, consultant in venereal disease control in the Shelby County health department, has been appointed director of venereal disease control in the state department of health at Nashville.——Dr. Thomas L. Harvey, Newport, health officer of Cocke County, has been transferred to the Dyer-Crockett counties health district with headquarters in Dyersburg. Dr. Luke W. Frame, Ripley, has succeeded Dr. Harvey.——Dr. Arthur K. Husband, Waterbury, Conn., has been appointed health officer of Unicoi County to succeed Dr. Landon H. Gurnee, Erwin, resigned.——Dr. Carl F. Luckey, Jackson, has been appointed health officer of Johnson County in Mountain City.

TEXAS

Allergy Society Reorganized.—The Texas Allergy Association at its annual meeting in Fort Worth in May changed its name to the Southwest Allergy Forum and elected Drs. Homer E. Prince, Houston, president and Simeon H. Hulsey, Fort Worth, secretary. The next meeting will be held in Little Rock, Ark., probably in March 1942.

UTAH

State Medical Election.—Dr. Edwin M. Neher, Salt Lake City, was named president-elect of the Utah State Medical Association at the annual meeting in Salt Lake City, June 11-12, and Dr. John R. Anderson, Springville, became president. Vice presidents elected were Drs. John C. Hubbard, Price; David P. Whitmore, Roosevelt, and Ernest L. Hanson, Logan. The next annual session will be in Provo.

VIRGINIA

Neuropsychiatric Meeting.—Dr. Leo Kanner, Baltimore, was the guest speaker at a meeting of the Neuropsychiatric Society of Virginia in Richmond, June 18, on "Psychotherapy in Children." Other speakers were Drs. Howard R. Masters, Richmond, on "Psychodynamic Aspects of War and Extenu-

ating Crises"; James B. Funkhouser, Marion, "A Description of the Rorschach Experiment," and Oscar B. Darden, Richmond, "Psychoses Among Students Requiring Hospitalization."

Symposium on Industrial Health.—The committee on industrial health of the Medical Society of Virginia and the bureau of industrial hygiene of the state department of health will present the second symposium on industrial health at the Medical College of Virginia, Richmond, September 11-12, with the cooperation of the Virginia Manufacturers' Association and the Richmond Chamber of Commerce. Among addresses scheduled are:

Dr. William J. McConnell, New York, Respiratory Diseases and Air Conditioning.
Dr. Louis Schwartz, Bethesda, Md., Diagnosis, Treatment and Prevention of Industrial Dermatoses.
Donald E. Cummings, B.S., Denver, subject to be announced.
Dr. Theodore Lyle Hazlett, Pittsburgh, Placement of the Worker.
Dr. Murray B. Ferderber, Pittsburgh, Selection of Heat in the Treatment of Plant Injuries.

There will be a symposium on industrial ophthalmology presented by Drs. Harry B. Stone, Roanoke; George H. Cross, Chester, Pa.; Rudolph C. Thomason, Richmond, and Charles N. Scott, Nitro, W. Va. Speakers in a symposium on injuries to the hand will be Drs. Sumner L. S. Koch, Chicago; Henry C. Marble, Boston, and Thomas Beath, Richmond. At an evening meeting, September 11, the speakers will be Philip Drinker, C.E., Boston, on "The Significance of Industrial Health in National Defense" and Dr. Edward J. Stieglitz, Garrett Park, Md., "Aging as a Problem of Industrial Health."

WYOMING

State Medical Election.—Dr. George H. Phelps, Cheyenne, was named president-elect of the Wyoming State Medical Society at the annual meeting in Casper. Dr. Lial S. Anderson, Worland, was made vice president and Dr. Marshall C. Keith, Cheyenne, was reelected secretary. The 1942 session will be held in Cheyenne.

GENERAL

Biologic Photographers to Meet.—The eleventh annual meeting of the Biological Photographic Association will be held at the Hotel Buffalo, September 11-13, in Buffalo. The program will emphasize methods and processes that are likely to contribute to national defense, according to an announcement. Visitors are welcome. Further information may be obtained from the Secretary, Biological Photographic Association, University Office, Magee Hospital, Pittsburgh.

Encephalitis Outbreak in Northwest States.—Sixty deaths have occurred in the outbreak of encephalitis that started about July 1 in North Dakota, the Associated Press reported August 7 (THE JOURNAL, August 9, p. 465). The disease has spread to South Dakota, from which 3 cases were reported, and Minnesota, in which there were 19, it was said. Dr. James P. Leake of the U. S. Public Health Service, Washington, D. C., and W. L. Jellison, an entomologist on the staff of the Rocky Mountain Laboratory of the public health service at Hamilton, Mont., have gone to Fargo to conduct an investigation.

Birth Rate Shows Upward Trend.—Provisional tabulations of births in 1940 indicate that the trend is upward, as it has been since 1933, the U. S. Bureau of the Census reports. There were 2,353,988 births reported, an increase of 91,260 over the final figure for 1939. The five states with the highest rates were New Mexico with 27.7 per thousand enumerated population, Utah 24.6, Mississippi 24.1, Arizona 23.5 and South Carolina 22.7. The rate for the District of Columbia was 23.1. The five states with the lowest birth rates were New Jersey with 14.1, New York 14.6, Connecticut 14.7, Rhode Island 15.1 and Missouri 15.5.

Society News.—Dr. Ernest M. Seydell, Wichita, Kan., was elected president of the American Otological Society at the annual meeting in May; Dr. Wesley C. Bowers, New York, vice president, and Dr. Isidore Friesner, New York, secretary. ——The American Association for the Advancement of Oral Diagnosis will be held in New York, November 13-14, at the New York Academy of Medicine. Members of the medical and dental professions in the United States and countries of the Western Hemisphere who are interested are invited to attend. Programs may be obtained from the secretary, H. Justin Ross, D.D.S., 515 Madison Avenue, New York.

Outbreak of Poliomyelitis Spreads.—Twenty-two new cases of poliomyelitis in the Camp Forrest area of Tennessee were reported, August 10, according to the Chicago *Tribune*. Schools in Moore County, which were to have opened on August 11, were ordered to remain closed until September 1. ——There were 125 cases in Alabama on July 25; 44 of the total were in Birmingham and Jefferson County, the Birmingham *News* reported.——Georgia had 221 cases on July 25, with 65 in Atlanta, according to the Atlanta *Journal*.——Illinois had a total of 72 cases, with 33 in Cook County (including Chicago), the state health officer reported on August 7.——The New York *Times* reported on August 5 that 44 cases had occurred in New Brunswick, Canada, since July 14, with four deaths.

Bequests and Donations.—The following bequests and donations have recently been reported:

Bryn Mawr Hospital, Bryn Mawr, Pa., $10,000 from the estate of the late Emily Chapman Philler of Haverford.
Stuyvesant Square, now the New York Skin and Cancer Hospital, and St. Luke's Hospital and the Hospital for the Ruptured and Crippled, New York, $153,000 each from the estate of the late Mrs. Esther Hull Tremain of Dobbs Ferry; she also provided remainder interests in two $50,000 trust funds for the Presbyterian and Roosevelt hospitals.
Manhattan Eye, Ear and Throat Hospital, $10,000, and Hospital for the Ruptured and Crippled, $5,000 by the will of the late George Bliss Agnew. Both are in New York.
Genesee Hospital, Rochester, N. Y., $2,000 and three fifths of the residuary estate of the late Mrs. Katherine C. Butts.
Grace Hospital and Children's Hospital, Detroit, $5,000 each from the will of the late Dr. George R. Andrews.

Meeting on Neoplastic Diseases.—The annual meeting of the American Association for the Study of Neoplastic Diseases will be held at Garfield Hospital, Washington, D. C., September 4-6. Chairmen for the sessions and topics to be discussed are:

Dr. Ramsay Spillman, New York, Lesions of Bone.
Dr. Harry F. Friedman, Boston, Lesions of the Female Genital System.
Dr. Leopold Clarence Cohn, Baltimore, Lesions of the Breast.
Dr. Louis Wallace Frank, Louisville, Lesions of the Gastrointestinal Tract.
Dr. Charles F. Geschickter, Baltimore, Lesions of the Lungs and Respiratory Passages.
Dr. George Curtis Crump, Asheville, N. C., Lesions of the Lymphoid, Myeloid and Reticuloendothelial Systems.

Friday evening there will be a banquet at the Hotel Mayflower with Dr. John Shelton Horsley, Richmond, Va., as the guest of honor.

China Defense Supplies Commission Appoints Medical Adviser.—Dr. Frank Wang Co-Tui, associate professor of experimental surgery at New York University College of Medicine, New York, has been appointed medical adviser to the China Defense Supplies Commission established by President Roosevelt last April to supervise purchases under the lend-lease program. Dr. Co-Tui will also advise on medical purchases for China made by the American Red Cross and United China Relief. He is vice president of the American Bureau for Medical Aid to China, one of eight agencies now coordinated in United China Relief, which has undertaken to supply all personnel needs, to recruit Chinese physicians living abroad for service in the Chinese Medical Corps, to equip and support the emergency training centers in China for medical aides and to aid the Chinese National Health Administration in its antiepidemic control plan. The medical bureau has opened headquarters at 1790 Broadway, New York, where American physicians and nurses can apply for service in China. One ambulance corps of fifty American, British and Canadian volunteers left on June 23 for service along the Burma Road, with Dr. Robert B. McClure, formerly of Hwaiking, Honan, China, in charge.

Government Services

Identification Tag Shows Blood Type

A new identification tag recently adopted by the U. S. Navy includes in the information it bears each man's blood group and the date on which he received tetanus toxoid.

New Unit for Neuropsychiatric Research

A neuropsychiatric research unit has been established at the Veterans Administration Facility at Northport, L. I., to conduct clinical and laboratory research in connection with neuropsychiatric disabilities among veterans. Dr. James H. Huddleson, recently on the staff of the facility at Portland, Ore., will be the director of the unit and Dr. William J. Turner, recently at North Little Rock, Ark., will supervise the laboratory activities. Technical assistance will include a biochemist, an assistant statistician and laboratory technicians. An effort will be made to standardize diagnostic and therapeutic methods used in the management of neuropsychiatric diseases and the staff will give instruction in modern concepts to medical officers of the Veterans Administration detailed for this purpose, it was said.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 25, 1941.

The Supply of Physicians in Wartime

At a meeting of the General Medical Council the president expressed satisfaction that the government had been alive to the need for maintaining an adequate supply of physicians for civilian as well as for the combatant services. By a new order the government has permitted the council to register temporarily in the colonial or foreign lists physicians from the dominions, colonies, protectorates and allied and enemy European countries provided that they held suitable diplomas and served as medical officers in hospitals or institutions or in some service not involving attendance on patients in their homes. To date two hundred and ninety-four such names had been registered. The credentials of American physicians volunteering in response to Mr. Roosevelt's appeal would be submitted to American bodies for approval. An offer from the Rockefeller Foundation to provide a two years course of free clinical instruction for twenty-five British medical students had been gratefully accepted. The selected candidates would serve as student ambassadors and should bring back interesting reports on medical education in the United States and Canada. Their two years over there would count as part of their curriculum here.

The Treatment of Fractures in the Emergency Hospitals

The emergency hospitals have been organized by the government for the treatment of the accidents sustained by civilians in enemy attacks. The minister of health has reviewed the facilities available for the treatment of fractures with a view to insuring that all patients receive the treatment best suited to their needs and are placed as early as possible under surgeons experienced in their management and in a hospital well equipped to deal with them. As these do not exist in all hospitals, he has decided to designate, in addition to the existing orthopedic centers, three new classes of fracture treatment centers. The first will be designated hospitals which are suitable, from their situation, for cases requiring hospital treatment for a considerable time. They will be under the direction of a surgeon experienced in the treatment of fractures and will provide massage, electrotherapy, remedial exercises and occupational therapy. The second class designated will have similar facilities but, from their position, not be suitable for long stay cases. They will be designated fracture departments for ambulant and short stay cases. The third class will provide special clinics suitably situated for outpatient treatment within reach of the patients' homes after discharge from the hospitals of the previous classes which are not so situated.

Work at the London School of Tropical Medicine

The war has seriously affected the work of the London School of Tropical Medicine, but programs of research have been carried out as well as a limited amount of teaching, and short intensive courses have been given for those about to undertake service in the tropics. The department of clinical tropical medicine suffered a serious loss when the Hospital for Tropical Diseases was closed on the outbreak of war, but as a temporary measure ten beds have been allocated at the Dreadnought Hospital, Greenwich, for cases of the type which used to be admitted to the Hospital for Tropical Diseases. But the Dreadnought Hospital has since been damaged by enemy action, so that other provisions for the teaching of clinical medicine have had to be made. The department of parasitology has been transferred to a town a short distance from London, where an investigation on subclinical helminthiasis in Great Britain is being continued, as well as other studies. Investigations on lice have occupied the department of entomology, and the use of modern insecticides has been carefully examined. In the public health department the behavior of the skin, especially in relation to the effects of clothing, has been studied.

Fresh Liver for Pernicious Anemia

Owing to the present shortage of supplies of raw liver, the Food Rationing Advisory Committee of the Medical Research Council was asked by the Ministry of Food to advise as to the need for special rations of fresh liver for the treatment of pernicious anemia. The committee advised that fresh liver is not necessary except in those rare cases in which parenteral injection of liver extract produces anaphylactic shock. The Ministry of Food has accordingly made no provisions for allowing extra rations of fresh liver in pernicious anemia in general but has arranged that on the production of a medical certificate that liver extract parenterally produces anaphylactic shock such rations may be obtained for particular patients. The advice of the committee is based on the following considerations: The treatment of pernicious anemia by parenteral liver extract is more efficient than that by ingestion of raw or lightly cooked liver; it is the cheapest method; under present conditions a continued supply of fresh liver cannot be guaranteed.

The treatment of pernicious anemia, says the committee, cannot be considered satisfactory unless the red corpuscles are maintained at 5 millions per cubic millimeter and the hemoglobin at 100 per cent. At lower figures the patient may feel well but there is danger of subacute degeneration of the cord developing. While the necessary values may be maintained by ingestion of fresh liver, the amounts required are such that few patients will take them indefinitely. On the other hand, intramuscular injections of 1 or 2 cc. of liver extract at intervals of seldom less than one or two weeks are sufficient.

The committee does not advise either the liquid or the powder preparations of liver designed for oral administration. Its reason is that, though efficacious, these preparations are uneconomical of the supply of raw liver available. About fifty times as much liver is required to produce a single dose as for parenteral administration. This objection does not apply to oral preparations made from the stomach.

Mr. Winston Churchill, F.R.S.

The fellowship of the Royal Society (F.R.S.) is the highest scientific distinction in this country and as a rule is conferred only on those who have done original scientific work of importance. The unusual ceremony has taken place of conferring the distinction on a man who is not a scientist but the value of whose work for the country cannot be exaggerated. At the cabinet room of the government, the president of the Royal Society, Sir Henry Dale, who has qualified as a physician and is an eminent biochemist, conferred the F.R.S. on the prime minister, Mr. Winston Churchill. Among the secretaries of the society present was the physiologist Prof. A. V. Hill, who is biologic secretary. After signing his name in the ancient charter book Mr. Churchill was shown the signature of his ancestor Sir Winston Churchill, father of the great duke of Marlborough, who was admitted an early fellow of the society in 1664.

Biochemist to Study the Food of the Air Force

The government has appointed a biochemist, Dr. T. F. Macrae, and a specialist medical officer, squadron leader W. P. Stamm, to watch over the food supplies of the air force to insure that the greatest nutritional value is obtained. The biochemist will analyze the foods and experiment to discover the existence and extent of any deficiency in vitamins, min-

erals, salts, proteins, carbohydrates or fats. The specialist medical officer will watch for the earliest signs of food deficiency in the health of the men. Both will study the preparation and cooking of food at the various units, the planning of a balance ration from the available supplies and the prevention of waste.

Dr. Macrae has done much organic chemical research since graduating in 1927. After working in Glasgow for two years he undertook biochemical research at Munich University under Professor Wieland and later at the Lister Institute and the London Hospital. He has performed experiments and published reports of researches on food, yeast, bread, potatoes and the fattening of pigs.

Celebration of an One Hundred and Eleventh Birthday

Mr. Patrick Lucas Hamilton, an Irishman who lives at Pleasant Point, 12 miles from Timaru, New Zealand, has celebrated his one hundred and eleventh birthday, states Reuter. In honor of the occasion he sat for three hours in an easy chair, which his family had presented to him on his hundredth birthday. He was born in County Donegal and came to New Zealand in 1870.

BUENOS AIRES

(From Our Regular Correspondent)

May 29, 1941.

Adolescent Health in Buenos Aires

Prof. Florencio Bazán and Dr. G. Bayley Bustamante, pediatricians officially connected with the division of school hygiene of the national health department in Buenos Aires, recently prepared a report of investigations made by their division into the health condition of school youths at the age level of 12 to 18 years. Of the 27,000 examined during the first quarter of 1940, 3,500 were about 18 years old, 22,000 were 12 years old or somewhat older and only 1,200 were under 12 years of age. Accordingly, the statistics submitted in this report cover youths between incipient puberty and the termination of the growth period.

In general, 10.47 per cent of the 27,000 children presented an anomaly of some kind. This does not include dental caries, which was found in 34 per cent of the children. Twenty-eight per cent of the younger children in this survey showed some infection exclusive of infections of the eyes (15 to 21 per cent) and ears (5 to 8 per cent). Since the latter infections were included in the studies for the older children, it demonstrated that the pathologic index of the older children was six times lower than that of the younger.

In the health analysis of the older children a good general condition was found in 26,000 (96.07 per cent). In 1,000 (3.89 per cent) a lower health index was seen consisting in serious chronic nutritional disturbances but without definite sequels, congenital defects or other defects associated with partial deficiencies. In 10 (0.04 per cent) poor general health was observed, such as chronic disorders with general deficiencies, cardiopathies or tuberculosis. An unsatisfactory nutritional status was seen in a small number of cases (0.45 per cent). (Statistics covering 500,000 elementary school children showed nutritional impairment in 2.93 per cent.) Overnutrition in the sense of uncomplicated obesity was observed in 1.29 per cent and may be due to the metabolic changes in early puberty. Endocrine dysfunction was seen in 195 cases of adipositas hypogenitalis, in 5 cases of gynecomastia, in 3 of infantilism (Lorain type), in 3 of hyperthyroidism, in 1 case of exophthalmic goiter and in 1 case of hypoplasia genitalis. Atypical cases are not included in these figures. The disease index noted in these disorders (0.77 per cent) was much higher than that of elementary school children (0.05 per cent), owing to the greater age and development of the former. The circulatory disturbances observed were valvular involvements and amounted to only 0.2 per cent. These figures are based on clinical evaluation. Electrocardiographic and roentgenologic methods would probably indicate a greater involvement. Only 30 cases of respiratory diseases were noted. However, common acute processes were not counted and no roentgenologic examinations were made. Nervous diseases were found in only 0.11 per cent, cutaneous diseases in 0.38 per cent (in elementary school children the rate was 1.76 per cent). Among otorhinolaryngologic diseases, hypertrophy of the tonsils and adenoids were as low as 0.52 per cent compared with a 9.57 per cent in children of elementary school age. The reduction is attributed to spontaneous regression or to medical care. Ocular disturbances were found in 5.36 per cent compared with a three times greater incidence in elementary children, the result, no doubt, of corrective measures taken. External deformities such as congenital malformation, hernia, scoliosis and flat foot amounted to 0.48 per cent; urogenital disturbances to 0.58 per cent, including 82 cases of testicular ectopy and 71 cases of varicocele.

The functions of the division of school hygiene consist not only in diagnosis and statistical surveys but in taking measures for early treatment. That public health studies are valuable can be gathered from the statistics furnished by the ministry of war regarding the fitness of examined recruits. In 1928 military unfitness amounted to 25.3 per cent. It rose to 42.1 per cent in 1939. The causes of unfitness assigned in 1939 in a report on 12,893 recruits of the first division (Buenos Aires, the capital) were insufficient body size 126, insufficient weight 366, insufficient chest index 3, constitutional weaknesses 1,527, nutritional and metabolic disorders 68, endocrine dysfunction 10, respiratory disorders 60, digestive disorders 1,613, circulatory disorders 150, urogenital disturbances 116, cutaneous disturbances 356, auditory disturbances 58, ophthalmologic disturbances 315, nervous disturbances 54, disturbances of hemopoietic organs 5, allergies and poisoning 10, infectious diseases 4, tuberculosis 44, congenital malformation, dystrophia, deformation and mutilation 997, traumas 94 and tumors 6. These conditions were found in 6,175 (47.1 per cent) of the 12,893 recruits.

Marriages

CHARLES GARDNER CHILD 3d, New York, to Miss Margaret McCrae Austin of Upper Montclair, N. J., June 14.

THOMAS GARDINER THURSTON, 2d, Taylorsville, N. C., to Miss Susan Rankin Fountain of Rocky Mount, June 10.

JAMES ANDRE LAMPHIER, Newton, Mass., to Miss Anne Fischer Nosworthy of Bronxville, N. Y., June 21.

WILLIAM HENRY BREEDEN, Bennettsville, S. C., to Miss Mary Fowler Robinson of Sand Spring, Md., in June.

WILLIAM TALIAFERRO THOMPSON JR. to Miss Jessie Gresham Baker, both of Richmond, Va., June 21.

EARL J. HOUGHTON to Miss Genevieve Fleishman, both of Davenport, Iowa, in Iowa City, June 25.

LANDON H. GURNEE, Erwin, Tenn., to Miss Doris Eakin of Lexington, Miss., in Memphis, June 8.

EDWARD HUGER ROBERTS, Choccolocco, Ala., to Miss Katherine Hall of Chicago, July 16.

LOUIS IACUEO, New York, to Miss Anne Victoria Spica of Mount Vernon, N. Y., June 10.

CHARLES HUGH MAGUIRE to Miss Sherley Chapman Jenkins, both of Louisville, Ky., July 2.

DAVID FERTIG, Hartsdale, N. Y., to Miss Catherine Campbell of White Plains, March 19.

JOHN HENRY BORN to Miss Eleanor Frederica Lehrfeld, both of New York, June 14.

WILLIAM F. KUBICEK, Cleveland, to Miss Lorell Watne of Nokomis, Ill., in June.

VIOLET GRAY HALFPENNY, Fairfield, Ala., to Mr. Lew Chauncey Wallace, June 14.

ROBERT J. HALEY JR. to Miss Ethel Brewer, both of Paragould, Ark., in June.

CHARLES PAINE JR. to Miss Mary Halbrook, both of Atlanta, Ga., in June.

Deaths

Walter Carl Klotz ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1898; assistant professor of public health and preventive medicine at the Cornell University Medical College; at one time associate professor of phthisiology at the University of Virginia Department of Medicine, Charlottesville, and instructor in medicine at the University of California Medical Department, Los Angeles; member of the American Clinical and Climatological Association; at various times medical director of the Vermont Sanatorium, Pittsford, Blue Ridge Sanatorium, Charlottesville, Va., and the Johnson City (Tenn.) National Sanatorium; formerly physician in charge of the Barlow Sanatorium, Los Angeles; served as associate medical director of the commission for tuberculosis in France, 1918-1919; for many years director of the outpatient department of New York Hospital; aged 65; died, June 29.

Elmore B. Tauber ✠ Cincinnati; Medical College of Ohio, Cincinnati, 1902; chairman of the Section on Dermatology and Syphilology of the American Medical Association, 1930-1931; professor of dermatology and syphilology at the University of Cincinnati College of Medicine; member of the American Dermatological Association, American Academy of Dermatology and Syphilology, Pan American Dermatological Society, tenth International Dermatological Congress, Society for Investigative Dermatology, Mississippi Valley Dermatological Society and the Central States Dermatological Society; on the staffs of the Cincinnati General Hospital, Jewish Hospital, Children's Hospital and the Holmes Hospital; aged 62; died, June 23, of a streptococcic infection.

James Ely Talley, Lima, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1892; emeritus professor of cardiology at the University of Pennsylvania Graduate School of Medicine; fellow of the American College of Physicians; served in the navy during the World War; one of the founders and past president of the Philadelphia Heart Association; one of the founders, for many years on the staff and a member of the board of directors of the Babies' Hospital, Philadelphia; member of the board of governors of the Children's Heart Hospital, Philadelphia; consulting physician on the staff of the Presbyterian Hospital and the Woman's Hospital, Philadelphia; aged 76; died, July 3, of arterial cerebral thrombosis.

John P. Fletcher, ✠ Lieutenant Colonel, U. S. Army, retired, Carlisle, Pa.; University of Virginia Department of Medicine, Charlottesville, 1908; entered the medical corps of the United States Army as a first lieutenant in 1910, in 1913 was appointed a captain, a major in 1917 and retired with rank of lieutenant colonel June 22, 1930 for disability in line of duty; was in active duty from June 23, 1930 to Oct. 31, 1930; fellow of the American College of Surgeons; served during the World War; aged 56; died, May 10, of uremia.

Charles Lloyd Connor ✠ San Francisco; Baylor University College of Medicine, Dallas, Texas, 1920; professor of pathology at the University of California Medical School; instructor of pathology at the Harvard Medical School, Boston, in 1925; member of the American Association of Pathologists and Bacteriologists and the American Society for Experimental Pathology; on the staff of the University of California Hospital; aged 49; died, June 12, of coronary arteriosclerosis.

George Flanders Wilson, Portland, Ore.; University of Virginia Department of Medicine, Charlottesville, 1879; University of the City of New York Medical Department, New York, 1880; emeritus professor of surgery at the University of Oregon Medical School; for many years on the staff of the Good Samaritan Hospital; aged 82; died, June 27, of hemiplegia resulting from hypertension.

James Alexander Craig ✠ Gary, Ind.; University of Maryland School of Medicine, Baltimore, 1908; fellow of the American College of Surgeons; served during the World War; attending surgeon, Methodist and St. Mary's Mercy hospitals, and Lake County Tuberculosis Sanitarium, Crown Point; formerly member of the school board; aged 61; died, July 2, of mitral regurgitation.

William Ernest Ramsay, Perth Amboy, N. J.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1888; member of the Medical Society of New Jersey; formerly health officer; at one time state senator; for many years on the staff of the Perth Amboy Hospital; aged 74; died June 26, of chronic myocarditis and coronary embolism.

William Tell Oppenheimer ✠ Richmond, Va.; Medical College of Virginia, Richmond, 1881; University of the City of New York Medical Departmnt, 1882; fellow of the American College of Surgeons; past president of the Richmond Academy of Medicine; past president of the city board of health; aged 80; died, June 11, of cardiorenal disease.

Alfred William MacPherson ✠ Los Angeles; College of Medical Evangelists, Los Angeles, 1929; member of the Nevada State Medical Association; assistant professor of anesthesiology at his alma mater; on the staff of the White Memorial Hospital; aged 39; died, June 18, following an operation on adhesions, causing chronic obstruction.

Eugene Augustus Vickery ✠ Medical Inspector, Commander, United States Navy, retired, Boston; Harvard Medical School, Boston, 1903; fellow of the American College of Surgeons; entered the navy in 1904 and retired in 1930 for incapacity resulting from an incident of service; aged 62; died, June 22, of coronary thrombosis.

Charles Leo McCrossan, Somerville, Mass.; Harvard Medical School, Boston, 1910; member of the Massachusetts Medical Society and the New England Obstetrical and Gynecological Society; member of the board of health; on the staff of the Somerville Hospital; aged 54; died, June 26, of chronic myocarditis.

Elwood D. Wilson, Jackson, Mich.; Michigan College of Medicine and Surgery, Detroit 1897; member of the Michigan State Medical Society; aged 70; died, June 19, in the Addison Community Hospital of burns received when wires on a pole he was helping to erect in a hay field came in contact with power lines.

William Joseph Lynch, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1909; member of the Medical Society of the State of Pennsylvania; served during the World War; aged 53; died, June 24, in the Holy Name Hospital, Teaneck, N. J., of adenocarcinoma of the stomach.

Dennis Matthew Ryan, Ware, Mass.; University of Vermont College of Medicine, Burlington, 1884; member of the Massachusetts Medical Society; for many years member of the school committee; on the staff of the Mary Lane Hospital; aged 80; died, June 14, of coronary disease.

Amos Morris Peters ✠ Alexandria, La.; University of Nashville (Tenn.) Medical Department, 1902; served during the World War; at one time parish coroner; aged 63; formerly on the staff of the Baptist Hospital, where he died, June 19, of pyelitis and pneumonia.

William Moore Woodward ✠ McKeesport, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1891; past president of the McKeesport Academy of Medicine; on the staff of the McKeesport Hospital; aged 75; died, June 17, of chronic myocarditis.

Domenico Carlantonio Mauro ✠ Mechanicville, N. Y.; Albany (N. Y.) Medical College, 1912; member of the board of education; aged 52; on the staffs of the Troy Hospital and the Leonard Hospital, where he died, June 14, following an operation for appendicitis.

Joseph J. Cobb, Berlin, N. H.; Medical School of Maine, Portland, 1881; member and past president of the New Hampshire Medical Society; formerly member of the board of education; for many years on the staff of St. Louis Hospital; aged 88; died, July 15.

Clarence Leonard Olson, McIntosh, S. D.; State University of Iowa College of Medicine, Iowa City, 1908; member of the South Dakota State Medical Association; aged 59; died, June 5, at the University Hospital, Minneapolis, of coronary sclerosis.

Howard Messner Ripley ✠ Kenosha, Wis.; Hahnemann Medical College and Hospital, Chicago, 1917; served during the World War; on the staffs of the Kenosha and St. Catherine's hospitals; aged 46; died, June 18, of coronary thrombosis.

Julius A. Klahs, Depew, N. Y.; Detroit College of Medicine, 1906; for many years health officer and school physician; aged 58; died, June 9, in the Buffalo General Hospital of pemphigus vulgaris, bronchopneumonia, cystitis and septic splenitis.

Albert Prince Weaver, Philadelphia; Jefferson Medical College of Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; aged 82; died, June 26, in the Presbyterian Hospital, of arteriosclerosis and heart disease.

Harry S. Swope, Ashland, Ky.; Louisville Medical College, 1898; member of the Kentucky State Medical Association; past president of the Boyd County Medical Society; formerly county coroner; aged 65; died, June 23, of coronary occlusion.

Alexander Joseph Verdon, Ridgefield, N. J.; St. Louis University School of Medicine, 1934; police and school surgeon; aged 34; died, June 19, in St. Mary's Hospital, Hoboken, of diverticulitis of the sigmoid and intestinal obstruction.

Charles R. Russell, Des Moines, Iowa; Keokuk Medical College, 1898; member of the Iowa State Medical Society; formerly secretary of the Van Buren County Medical Society; aged 70; died, June 21, of cardiac decompensation.

Garrett Van der Veer Johnson, Lake City, Fla.; Albany (N. Y.) Medical College, 1896; veteran of the Spanish-American War; on the staff of the Veterans Administration Facility; aged 68; died, June 10, of coronary occlusion.

Tyrus Eugene Swan ✠ Easton, Pa.; Kentucky School of Medicine, Louisville, 1889; past president of the Northampton County Medical Society; on the staff of the Easton Hospital; aged 79; died, May 28, of carcinoma of the nose.

Murray Lincoln Kaplun ✠ New York; Hessische Ludwigs-Universität Medizinische Fakultät, Giessen, Hesse, Germany, 1923; served during the World War; aged 46; died, June 24, in the Memorial Hospital, of Hodgkins disease.

Andrew Jackson Heflin, Oberlin, La.; University of Nashville (Tenn.) Medical Department, 1906; member of the Louisiana State Medical Society; for many years parish coroner; aged 65; died, June 14, of coronary thrombosis.

Ralph Sumner Martin ✠ Fredericktown, Pa.; University of Pittsburgh School of Medicine, 1912; aged 55; died, June 24, in the Hillsview Sanitarium, Washington, of cerebral arteriosclerosis and acute adhesive pericarditis.

Anthony Kimmel Warner ✠ Chicago; University of Maryland School of Medicine, Baltimore, 1885; on the staff of the American Hospital; aged 77; died, June 27, of cerebral hemorrhage and arteriosclerosis.

Percy Burdell Long, Copley, Ohio; Ohio Medical University, Columbus, 1898; member of the Ohio State Medical Association; served during the World War; aged 67; died, June 14, of cerebral hemorrhage.

Max Sonkin, New York; University and Bellevue Hospital Medical College, New York, 1917; member of the Medical Society of the State of New York; aged 47; died, June 13, of coronary thrombosis.

Sylvester Newton Mayberry ✠ Enid, Okla.; St. Louis College of Physicians and Surgeons, 1893; president of the University Hospital Foundation; aged 73; died, June 22, of coronary embolism.

R. Berney McNeill, Jemison, Ala.; Memphis (Tenn.) Hospital Medical College, 1898; member of the Medical Association of the State of Alabama; aged 68; died, June 23, of angina pectoris.

Addison G. Swaney ✠ Lees Summit, Mo.; University Medical College of Kansas City, Mo., 1906; formerly deputy coroner of Jackson County; aged 59; died, June 3, of hypertension and nephritis.

Harry Patrick Hall, Atlantic, Iowa; Drake University Medical Department, Des Moines, 1894; member of the Iowa State Medical Society; aged 69; died, June 24, of cerebral hemorrhage.

Luckey Andrew Jenkins, Birmingham, Ala.; Medical College of Alabama, Mobile, 1889; member of the Medical Association of the State of Alabama; aged 75; died, June 22, of myocarditis.

Ivan Dimiter Mishoff ✠ Milwaukee; Rush Medical College, Chicago, 1889; an Affiliate Fellow of the American Medical Association; aged 83; died, June 20, of coronary thrombosis.

John Edward McGinnis, Green Bay, Wis.; Rush Medical College, Chicago, 1900; served during the World War; aged 69; died, June 12, in the Veterans Administration Facility, Hines, Ill.

Herbert E. Purcell, Charleston, S. C.; Howard University College of Medicine, Washington, D. C., 1894; aged 74; died, June 21, of cerebral hemorrhage, hypertension and arteriosclerosis.

Lavinia Dunn Lambert, Oakland, Calif.; University of Michigan Homeopathic Medical School, Ann Arbor, 1881; aged 93; died, June 22, of bronchopneumonia and mitral regurgitation.

Ambrose M. Mayfield, Montmorenci, Ind.; Kentucky School of Medicine, Louisville, 1894; aged 70; died, June 25, in St. Elizabeth Hospital, Lafayette, of coronary occlusion.

Clymer Defoor Jeffries, Williams, Ariz.; Atlanta (Ga.) College of Physicians and Surgeons, 1902; aged 60; died, June 22, in the Mercy Hospital, Flagstaff, of pulmonary edema.

Hugh McCulloh Sr., West Point, Ga.; Atlanta Medical College, 1895; member of the Medical Association of the State of Alabama; aged 67; died, June 16, of angina pectoris.

Richard McCord Hoffman, Orkney Springs, Va.; University of Virginia Department of Medicine, Charlottesville, 1907; aged 61, died, June 17, of coronary thrombosis.

Robert S. Linn, Detroit; Michigan College of Medicine and Surgery, Detroit, 1891; served during the Spanish-American War; aged 71; died, June 18, of cerebral hemorrhage.

Orville William Kimbell, Toledo, Ohio; Toledo Medical College, 1897; member of the Ohio State Medical Association; aged 68; died, June 9, of cerebral hemorrhage.

Alvah Vernon Mills ✠ Newark, N. J.; University of Vermont College of Medicine, Burlington, 1905; aged 59; died, June 24, in Little Falls of coronary sclerosis.

David A. Yates, Avant, Okla.; Ensworth Medical College, St. Joseph, Mo., 1900; aged 62; died, April 2, of an embolus following an operation on the gallbladder.

William Henry Syme, Washington, D. C.; George Washington University School of Medicine, Washington, 1904; aged 70; died, June 6, in Hendersonville, N. C.

Charles H. Payette, Duluth, Minn.; Hospital College of Medicine, Louisville, Ky., 1898; aged 76; died, June 11, in St. Mary's Hospital, of bronchopneumonia.

Henry Sanford Liddle, Schenectady, N. Y.; Hahnemann Medical College and Hospital of Philadelphia, 1897; aged 70; died, June 28, of coronary disease.

J. Frank Williams, Roebuck, S. C.; Southern Medical College, Atlanta, Ga., 1888; aged 75; died, June 10, of bronchopneumonia and pulmonary emboli.

Nils Gabriel Rosen, Brooklyn; University and Bellevue Hospital Medical College, New York, 1918; aged 61; died, June 21, of cerebral hemorrhage.

Ellwood Matlack, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1886; aged 75; died, June 12, in Johnsville, Pa.

William B. May, Menands, N. Y.; University of Buffalo School of Medicine, 1896; aged 83; died, June 28, of coronary occlusion and arteriosclerosis.

Raymond B. Nutter ✠ Enterprise, W. Va.; Louisville (Ky.) Medical College, 1905; aged 62; died, June 20, of carcinoma of the pancreas.

Edgar C. Hutchins, Greenville, Texas (licensed in Texas by years of practice); aged 63; died, June 21, of cerebral hemorrhage and pneumonia.

Percy Edwin Lilly, Kilmarnock, Va.; University of Maryland School of Medicine, Baltimore, 1901; aged 63; died, June 15, of angina pectoris.

Thomas B. Kerley, Simpson, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 76; died, June 27, of cerebral hemorrhage.

Perry K. Pratt, St. Joseph, Mich.; American Medical College, St. Louis, 1893; aged 74; died, June 12, of cerebral hemorrhage.

Joseph Edmond Le Sage, Montreal, Que., Canada; Laval University Faculty of Medicine, Quebec, 1895; aged 69; died, June 25.

Margaret H. Lister, Winfield, Kan.; John A. Creighton Medical College, Omaha, 1911; aged 67; died, June 12, of heart disease.

Matthew Alvin Lenton, Vineland, N. J.; Kentucky School of Medicine, 1904; aged 80; died, June 30, of arteriosclerosis.

Lyda McKendree, Bowling Green, Ohio; Toledo Medical College, 1892; aged 83; died, June 15, of arteriosclerosis.

Hugh R. Jeffrey, Morristown, Ohio; College of Physicians and Surgeons, Baltimore, 1893; aged 72; died, June 10.

Robert Hutchinson, Capron, Ill.; Rush Medical College, Chicago, 1876; aged 90; died, June 8, of pneumonia.

Thomas Herbert Sneath, Durham, Ont., Canada; Trinity Medical College, Toronto, 1895; died, May 27.

John Wesley Clubb, Blanford, Ind.; Louisville (Ky.) Medical College, 1884; aged 77; died, June 30.

Aldora J. Tyler, Clinton, Ill.; Woman's Medical College, Chicago, 1885; aged 79; died, June 7.

Josiah L. Barge, Gretna, La.; Atlanta (Ga.) Medical College, 1887; aged 82; died, May 22.

John S. Murphy, Sullivan, Ind.; (licensed in Indiana in 1897); aged 85; died in June.

Bureau of Investigation

SOME MISCELLANEOUS FRAUD ORDERS

United States Post Office Closes the Mails to Certain Medical Fakes

Fraud orders issued by the Post Office Department have frequently been the subject of extensive articles by the Bureau of Investigation in these pages of THE JOURNAL. Following are brief abstracts of some Fraud Orders not dealt with previously:

Alberta Studios.—How to learn the secret formula for "pep" at the cost of a dime was the alluring promise held out by these "Studios," run by one A. C. Backman of Buffalo. If one sent the dime he learned that "the secret" was simple: "Natural Oats." In case the customer did not recognize the substance, he was told that it was "the kind of oats horses get," and further, "the reason horses are given oats is to make them PEPPY." If one needed further convincing, he was told that "the natural goodness in oats has given me EXTRA PEP—I am sure it will give you that PEPPY FEELING, the same as myself and as horses." If one wanted to feel as peppy as Mr. Bachman or as horses, he was told to "take a ½ gallon of NATURAL OATS, soak in 2 gallons of distilled water 44 hours bring to a boil not more than 10 minutes, keep covered while boiling, cool, strain, pressing excess from oats, put in bottles and keep corked." Finally he was told that if he would drink a wineglassful (presumably of the expressed liquid) after each meal and keep up the good work "for a week or two" he would "see the different PEPPY person" the stuff had made of him. But the skeptical Post Office Department consulted expert medical authorities, who pointed out that following the directions for taking this "oat brew" would provide the taker with only about 20 units of vitamin B_1 daily, whereas an adult requires about 250 units daily; and that the only minerals in natural oats whose absence from the diet is likely to cause mineral deficiency disorders are those which are not water soluble; consequently this "oat brew," from which the directions require the straining of all pulp, would not furnish the user with any therapeutically significant amounts of the important minerals. It was further shown that loss of "pep" may be due to many conditions on which the use of this "oat brew" would have no effect whatever. Bachman also sold a booklet, "Whatever You Desire Can Be Yours," which all-inclusive promise was obviously impossible of fulfilment. Altogether his schemes were found to justify the issuing of a fraud order against his business, and this was done on Oct. 14, 1940.

Allen Health Food Company.—This concern, located at Keansburg, N. J., had an A. W. Caskey as manager. It did business by mail, selling "Enerjol" for the restoration of lost youthful vigor. Caskey was found to be an electrician without medical training, yet he promoted his "cure" as "A NEW SCIENTIFIC DISCOVERY OF A VITAMIN WHICH IS CALLED THE 'ANTI-STERILITY VITAMIN,'" adding that "it comes under the head of Vitamin E, and has to do with fertility, youthful vigor, and all the other desirable things we mortals covet!" Government chemists reported that Enerjol consisted of small globular capsules or "perles" containing vitamin E in the form of wheat germ oil. Expert witnesses testified at the government hearing that the amount of vitamin E was too small to remedy a deficiency thereof. Also they pointed out that neither vitamin E nor any other treatment will correct all cases of sterility or sexual decline. On Aug. 15, 1940 the Post Office banned this business from the mails on the ground that it was fraudulent.

Anatone Company.—This New York concern used the mails to sell "Anatone" under what the Post Office Department declared were false and fraudulent representations that it would completely overcome all forms of constipation, prevent the recurrence thereof (except where there is "another" alleged "unbalancing of normal routine") and produce "normal, natural" bowel movements; and that the product is different from ordinary methods of treating constipation, does not involve the use of drugs and produces no injurious effects. Government chemists reported that Anatone was a colorless, sticky material to be inserted into the rectum by means of a nozzled tube and that it consisted essentially of water, glycerin, boric acid and small amounts of gelatin and a gum. Expert medical testimony was produced to show that such a mixture and method will not bring about a natural bowel evacuation or eliminate the basic causes of constipation. Hence it would not and could not offset improper dietary, lack of exercise, deleterious hygienic conditions, abnormal nervous or glandular states, the use of opiates and other factors in constipation. Further, despite the promoters' claims to the contrary, Anatone did contain drugs, did act as a cathartic, would irritate the lower bowel and its use could be harmful and in some cases dangerous. As its sale was held to be a fraudulent means of obtaining money through the mails, a fraud order was issued against the Anatone Company, Anatone Company Production Department and their officers and agents as such on Dec. 18, 1939.

Harris Research Bureau.—This Phoenix, Ariz., concern was run by a P. C. Harris who sold through the mails the alleged answers to 650 questions, representing that his replies were valuable and correct. These "650 opportunities for employment and financial independence" were obtainable for $1. The customer was told that he could, in turn, go into the business of selling the answers to other customers, making 75 cents on each deal and paying the Harris concern 25 cents. The Post Office investigation disclosed that the Harris circulars contained a long jumbled list of questions on unrelated subjects under several headings which were allegedly answered in the material supplied to customers. Under the heading "How to do These Things" were listed such subjects as "Get Sleep," "Remove Warts," "Help Babies Sleep" and "Remove Surplus Fat." Under the title "How to Make" were "Small Pox Remedy," "Hair Oil," "Freckle Lotion," "Eczema Ointment," "Pyorrhea Remedy," "For Tooth Decay Prevention," "Remedy for Baldness," "Itch or Ringworm Remedy," "Treat Sugar Diabetes" and some other things. Another title, "How To Do These Things," covered such subjects as "Gain Flesh," "For Arthritis," "For Pellagra," "Stop Hiccoughs," "For Athletic Feet," "For High Blood Pressure" and "How To Prevent Headaches." The Post Office found that careful examination of the questions and answers disclosed that for the most part the replies were valueless, unreliable and in a considerable number of instances false. Particularly false, according to the expert testimony of a physician at the hearing of the case, were the answers furnished to the large number of medical questions propounded and did not afford customers proper information for treating the various disorders involved. It was further emphasized that in many of the diseases mentioned self treatment would be dangerous and might even result in loss of life. In some cases the advice given was utterly ridiculous. The patient with appendicitis, for instance, was told to "stand on head so poison runs out of appendix." Such worthless "information" as this and some other replies was held to defraud the customers and consequently the Harris Research Bureau was debarred from the mails by a Post Office fraud order issued on Oct. 23, 1940.

Lanac Chemical Company.—On July 25, 1940 the Post Office debarred this Chicago concern from the mails on the ground that its "Lanac Compound" was being sold through that means under fraudulent pretenses, representations and promises as a remedy for varicose ulcers and "terrible sores" on the body. Government chemists reported that it was a dark brown ointment containing balsam of Peru, ichthammol and about 8 per cent of bismuth (as oxygallate), with a slight vanilla odor. Expert medical testimony showed that this mixture would have little value in treating chronic leg sores, especially those caused or complicated by varicose veins. The concern neither put up any defense nor sent a representative to the hearing. Another government agency, the Federal Trade Commission, reported in February 1938 that it had prevailed on the Lanac Chemical Company, Chicago, trading under the name Dr. Latham Chemical Company, to promise to drop the term "Dr." in its name, implying that a licensed physician was associated with the business, and to cease representing that the ointment was a competent treatment and cure for varicose ulcers and had been used in a prominent clinic.

Philip Wong.—From Cambridge, Mass., this person, a Chinese, sold by mail a product that he called "Soft Corns Valuable" and promoted it as a cure for corns and skin diseases, including even such serious ones as psoriasis, cancer and those resulting from syphilis. In his come-on literature Wong quaintly claimed to "guarantee all kinds corns CURE." Those up to five years growth could be "cured" for $2 and those over ten and up to thirty years development would require $25 worth of the treatment. Besides, "35 years old skin trouble don't cost so much"—but just how much, was not stated—and Wong promised it would be gone in six months. Another misrepresentation was that the nostrum had been recognized by the United States government. Federal chemists reported that it consisted essentially of sulfides of sodium, iron and copper. On Feb. 2, 1940 the Post Office Department debarred the scheme from the mails on the ground that it was a fraud. In October 1935 a Boston newspaper reported that Wong had been warned by the Federal Trade Commission that he would be prosecuted unless he ceased advertising his "Soft Corns Valuable" as being good for cancer.

Saenger Concern.—This Shreveport, La., outfit was run by one A. D. Saenger, who did business by mail under a number of "Saenger" trade styles that gave the impression that he was in the drug business. His nostrums, sold under the "Saenger" brand, included "Sarsaparilla Skin and Blood Purifier," "Wonder Wine for Women" and "Kidney Root." The Skin and Blood Purifier, advertised for syphilitic conditions, tumors, scrofula, catarrh, rheumatism and some other things, was found by government chemists to consist essentially of water, sugar, sarsaparilla, alcohol (4.1 per cent), potassium iodide (5.8 grains per fluidounce), licorice and other plant extractives. The Wonder Wine for Women, claimed to be "a purely vegetable compound highly recommended for the treatment of all female weaknesses and disorders . . ." was reported to be 18.4 per cent alcohol with sugar and water, plus viburnum and other plant extractives. The Kidney Root, according to one claim, "Positively relieves all kidney, bladder and liver trouble." It was found to be a light brown liquid containing 10.5 per cent of alcohol, and in each fluidounce 17.8 grains of methenamine, 26.1 grains of sodium sulfate and ¼ grain of sodium salicylate, with sugar and water. The Post Office produced sufficient evidence that the Saenger business constituted a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises and on Jan. 5, 1940 issued a fraud order against the concern but not against the A. D. Saenger back of it.

Zulema Moralma Gelo.—From Mexico City this person advertised that for stated sums of money she would relieve the remitter of any disease, ill fortune and unfavorable influences. In one of her advertisements, printed in Spanish in a San Antonio, Texas, paper, she claimed to be "The potential clairvoyant of world fame, who prophesied the European War, and who predicts another war, tells the past, present and future, a spiritualist, mental (hypnotic) suggestions, graphology, matters pertaining to astrology, love, business, psychological advice, repels unfavorable influences in all business. Highly scientific in palm reading. Consult her at Honduras 41, Department 8, Mexico, D. F." Those who "bit" were requested to furnish certain information concerning their illness or difficulty and remit $2 by international money order for advice on overcoming the condition. One customer, who stated only that he had "terrible pains in the stomach" and cramps in the legs was told to take camomile tea every morning for the stomach trouble and resort to a printed "Prayer to the Watersprites" which Zulema Gelo supplied. Expert medical testimony was produced to show that, though camomile tea may have a slight stimulant and irritant effect on the lining of the stomach, it would have no practical value in the treatment of any serious disease of the stomach and that an irritant tea in cases of stomach ulcers and cancer, for instance, would undoubtedly increase the painful symptoms. The testimony further pointed out that persons who relied on the advice furnished by this advertiser might even lose their lives through failure to obtain proper medical treatment. The Post Office accordingly debarred the business from the United States mails by means of a fraud order issued on Nov. 23, 1940.

Correspondence

SURGERY VS. INJECTION TREATMENT OF VARICOSE VEINS

To the Editor:—A communication to the editor of THE JOURNAL, May 25, 1940, page 2139, by Isaak Ludwig discussing the paper of Dean and Dulin suggests the many inconsistencies in the present discussion and treatment of varicose veins. In their paper, Dean and Dulin state that there are more fatalities than are reported with the injection treatment of varicose veins. They state that they use the high ligation plus the injection treatment in these cases. In the same paper they cite Westerborn's statistics on the comparative mortality rates with the various types of treatment, which show a mortality of 0.26 per cent with surgical treatment alone, 0.33 per cent with high ligation plus the injection treatment and only 0.036 per cent with the injection treatment alone.

These statistics, which I am convinced will check favorably with the average reliable statistics, show a ten times greater mortality rate with high ligation plus retrograde injection than with the injection treatment alone.

Kettel says, in his cited paper, that the extremely low mortality rate among patients treated by injections alone can be further reduced by proper precautions. With regard to the high ligation and retrograde injection treatment, he states that the mortality rate rises from 0.5 per cent to 1 per cent and cites Bernsten, Kilbourne, Laqua, Reichel and others. He writes "The majority of authors [Meissen, Kilbourne, Fraenkel, Gruca, Baur, Vigyozo] reject the combined treatment of high ligation and injection."

Probstein calls attention, in his cited paper, to 120,000 injections of varicose veins in a series of 15,000 consecutive cases, observed by Sicard and Gangier, without a single mortality.

Silverman writes: "A search of the literature has revealed a total of only 19 cases of embolism following in hundreds of thousands of cases."

Kilbourne reports that he did not have a single fatality in his clinic in 20,000 injections of varicose veins. He calls attention to the thrombus formed above the ligation, which is an important source of fatal embolism. Other authors have called attention to this fact. McCallig and Heyerdale (A Basic Understanding of Varicose Veins, THE JOURNAL, July 13, 1940, page 97) have well shown this graphically.

In 1922 we began the injection treatment of varicose veins at the University of Minnesota (Hayes, J. M.: Treatment of Varicose Veins, *Journal-Lancet* **45**:12 [Jan. 1] 1925). Since then I have either done or supervised more than 30,000 injections without a single mortality. During this time, only 1 patient had to be hospitalized. We did not see evidence of a single embolism. Seldom do we see a patient who is not able to continue his occupation without interruption during this treatment.

In 1930 Dr. Bell's department at the University of Minnesota sectioned veins which we had removed a few days after injection. The sections show the resulting thrombus intimately interwoven with the intima of the vein. This is in striking contrast with the thrombus otherwise produced. The thrombus frequently formed above the ligation is the type that does result in fatal embolism.

McPheeters and de Takats call attention to the fact that ligation at the end of the great saphenous vein would prevent thrombus above the ligation. This is true but apparently is not always done.

We have used practically every sclerosing solution suggested for this purpose since Linser first instituted this method of treatment by injecting mercury bichloride.

In 1922 we began cautiously using mercury bichloride as the sclerosing solution. At first we accepted only patients with severely infected ulcers. These patients had all been rejected for surgery.

The injection treatment gradually replaced surgery not only in the cases of severe involvement but also in the mild, ordinary varicose veins. We made more than 2,000 injections of mercury bichloride before less toxic solutions were suggested. We had no serious results.

Previously, while at the Mayo Clinic, I worked with Dr. Sistrunk, who was doing much of the surgery of varicose veins at the clinic at that time. He employed most of the methods suggested at that time but for the most part did the Mayo stripping removal of the veins.

Many surgeons did multiple ligations, hoping to cure varicose veins in this way. The latter method caused the collapse of the vein following the operation, but frequently in a short period the veins were filled through communicating branches and appeared much as they did originally. Today we frequently see the same sort of recurrences following the high ligation.

Surgery was abandoned several years ago in the treatment of varicose veins because of the high morbidity, mortality and expense of this method when compared with the injection treatment.

In 1921 at the University of Minnesota it was evident that a large proportion of patients were not having their varicose veins treated. The large number of old, sloughing varicose ulcers was evidence of this. A few years after we began the injection treatment of varicose veins, varicose ulcers were rare.

It is true that some patients do respond more readily to high ligation and retrograde injection, but these patients are comparatively few. In the average case there is little difference in the time element with the two methods of treatment. And the inconvenience to the patient is far less with the injection treatment alone. In a large number of cases nearly as many injections are necessary after the high ligation is made. Many who do the high ligation are tempted to inject a large amount of solution at the time of ligation. With the injection treatment alone, a small amount of solution may be injected to make sure that the patient is not allergic to this particular solution. I am certain that this is one source of the serious results with the high ligation and retrograde injection method.

After observing and employing all suggested methods for the past several years, I now follow the procedure I published in *Minnesota Medicine* (**13**:564 [Aug.] 1930). For several years now I have injected varicose veins wherever they appear on the thigh. The results here are as good as elsewhere.

There are recurrences with this method as with all other methods, but patients do not hesitate to return to have these recurrences treated with the injection method as they do when treated surgically. We have patients return after a year or two for a few injections and continue on their job without interruption. We have followed some of these patients for from fifteen to nineteen years. Some have returned several times for a few injections but are well pleased with the results.

If only a small amount of solution is introduced at the first injection, to make sure that the patient is not allergic or has an idiosyncrasy to the solution, and, if strict asepsis is observed, little difficulty should be encountered with this method.

It has been suggested that not all the bad results have been reported in the high ligation and retrograde injection method. I am certain that this is true. In one hospital in Minneapolis there have been 2 fatalities, and another serious result, which I am sure have not been reported. These patients were all treated by well trained surgeons.

Men highly trained in the high ligation and retrograde injection method may be skilful or fortunate enough to operate with-

out bad results, but I am sure that in the hands of the average medical man the mortality rate will agree favorably with Westerborn's statistics.

Dr. de Takats has shown theoretically why injection treatment of varicose veins in cases of deep thrombophlebitis will not give good results.

Varicose veins are not functioning veins. Wherever they exist they are merely pools of stagnant blood. This blood gradually seeps through the wall of the dilated vein into the surrounding tissues. This readily creates a condition susceptible of infection. Slight trauma causes a breaking down of the local tissues, resulting in a varicose ulcer.

We have injected and thrombosed these veins for many years with no bad results. While improvement is slow, we do get good results. Our chief precaution here is to avoid giving these patients injections during acute thrombophlebitis. We usually wait from three to six months after an acute condition. An embolus may result from the acute thrombophlebitis. If injected during this time, such an embolus may be credited to the operator.

Dr. Ochsner and his associates (Treatment of Thrombophlebitis by Novocain Block of the Sympathetics, *Surgery* **5**:491 [April] 1939) have popularized the paravertebral injection in cases in which ulcers exist in the presence of an old thrombophlebitis. Our experience with this method is quite limited, but in a few cases we have had excellent results. In refractory cases of old thrombophlebitis in the presence of swelling, edema and painful ulcers, this injection has proved efficacious.

It is sometimes surprising how the pain ceases, the swelling and edema subside and the ulcer sometimes clears up without further treatment. I hail this procedure as a promising aid in these troublesome cases.

J. M. HAYES, M.D., Minneapolis.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

CHICAGO, Feb. 16-17, 1942. Council on Medical Education and Hospitals, Sec., Dr. William D. Cutter, 535 North Dearborn Street, Chicago.

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, August 9, page 473.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 16-18. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARKANSAS: * *Medical.* Little Rock, Nov. 6-7. Sec., Dr. D. L. Owens, Harrison. *Eclectic.* Little Rock, Nov. 6. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), San Francisco, Oct. 1. *Written.* Sacramento, Oct. 20-23. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

COLORADO: * *Examination.* Denver, Oct. 7. *Endorsement.* Denver, Oct. 8-10. Sec., Dr. George R. Buck, 831 Republic Bldg., Denver.

CONNECTICUT: *Medical. Examination.* Hartford, Nov. 11-12. *Endorsement.* Hartford, Nov. 25. Sec., Dr. Creighton Barker, 258 Church St., New Haven. *Homeopathic.* Derby, Nov. 11-12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DISTRICT OF COLUMBIA: * Washington, Nov. 10-11. Sec., Dr. George C. Ruhland, 6150 East Municipal Bldg., Washington.

FLORIDA: * Jacksonville, Nov. 24-25. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, Oct. 14-15. Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 7. Dir., Bureau of Occupational License, Mr. Walter Curtis, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, Oct. 14-16. Supt. of Registration, Mr. Lucien A. File, Department of Registration and Education, Springfield.

INDIANA: Indianapolis, June 16-18. Sec., Board of Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

KANSAS: Kansas City, Sept. 23-24. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, Dec. 8-10. Sec., Dr. A. T. McCormack, 620 S. Third St., Louisville.

MARYLAND: *Medical.* Baltimore, Dec. 9-12. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 9-10. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MICHIGAN: * Lansing, Oct. 15-17. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 203 Hollister Bldg., Lansing.

MINNESOTA: * Minneapolis, Oct. 21-23. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul.

MISSISSIPPI: *Reciprocity.* Jackson, December. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MONTANA: Helena, Oct. 6-8. Sec., Dr. Otto G. Klein, First National Bank Bldg., Helena.

NEW HAMPSHIRE: Concord, Sept. 11-12. Sec., Board of Registration in Medicine, Dr. T. P. Burroughs, State House, Concord.

NEW JERSEY: Trenton, Oct. 21-22. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 13-14. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 15-18. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, State Education Department, 315 Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* December. Sec., Dr. W. D. James, Hamlet.

NORTH DAKOTA: Grand Forks, Jan. 6-9. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OKLAHOMA: * *Reciprocity.* Oklahoma City, Dec. 10. Sec., Dr. James D. Osborn, Jr., Frederick.

TEXAS: Austin, Nov. 17-19. Sec., Dr. T. J. Crowe, 918 Texas Bank Bldg., Dallas.

VERMONT: Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. F. J. Lawliss, Richford.

VIRGINIA: Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WISCONSIN: * Madison, Jan. 13-15. Sec., Dr. H. W. Shutter, 425 E. Wisconsin Ave., Milwaukee.

WYOMING: Cheyenne, Oct. 6-7. Sec., Dr. M. C. Keith, State Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Tucson, Sept. 16. Sec., Mr. Franklin E. Roach, Science Hall, University of Arizona, Tucson.

COLORADO: Denver, Sept. 10-11. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: Oct. 11. Address State Board of Healing Arts, 1945 Yale Station, New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 20-21. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: DeLand, No. 1, Final date for filing application is Oct. 17. Sec., Professor J. F. Conn, John B. Stetson University, DeLand.

IOWA: Des Moines, Oct. 14. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MINNESOTA: Minneapolis, Oct. 7-8. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

NEBRASKA: Lincoln, Oct. 7-8. Dir., Bureau of Examining Boards, Mrs. Jeannette Crawford, 1009 State Capitol Bldg., Lincoln.

OREGON: Portland, Nov. 1. Final date for filing application is Oct. 15. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, Aug. 20. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Aberdeen, Dec. 5-6. Sec., Dr. G. M. Evans, Yankton.

WISCONSIN: Madison, Sept. 20. Sec., Professor Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee.

District of Columbia May Report

The District of Columbia Board of Examiners in Medicine and Osteopathy reports the written examination for medical licensure held at Washington, May 12-13, 1941. The examination covered 9 subjects and included 60 questions. An average of 75 per cent was required to pass. Six physicians were licensed to practice medicine by reciprocity and 6 physicians so licensed on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
George Washington University School of Medicine	(1938) 84.5, (1939) 82.5, 83.6, 88.5, (1940)* 77, 77, 79, 83.5, 89.3	(1934)	84.5,
Georgetown University School of Medicine	81.8, 81.8, (1940)* 84.2, 88.3	(1939)	79.1,
Howard University College of Medicine		(1940)	80.8*
The School of Medicine of the Division of the Biological Sciences		(1938)	83.8
Johns Hopkins University School of Medicine		(1935)	81
Tufts College Medical School		(1931)	86.5
Washington University School of Medicine		(1935)	83.1
Columbia University College of Physicians and Surgeons		(1926)	77.1
Jefferson Medical College of Philadelphia		(1939)	80.1
Queen's University Faculty of Medicine		(1932)	85.5

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University School of Medicine	(1932) Maryland, (1937) Maine	(1926)	Penna.,
Howard University College of Medicine		(1931)	Virginia
Medical College of the State of South Carolina		(1935)	S. Carolina
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn		(1934)	New Jersey

School	LICENSED BY ENDORSEMENT	Year Grad.
College of Medical Evangelists		(1940)
Yale University School of Medicine		(1934)
Georgetown University School of Medicine		(1938, 2)
Harvard Medical School		(1936)
Tufts College Medical School		(1936)

* Licenses have not been issued.

Alaska Reciprocity Report

The Alaska Board of Medical Examiners reports 1 physician licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners from March 25 through May 7. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Columbia Univ. College of Physicians and Surgeons		(1937)	Washington

School	LICENSED BY ENDORSEMENT	Year Grad.
University of Minnesota Medical School		(1940)

Montana March-April Report

The Board of Medical Examiners of Montana reports the written examination for medical licensure held at Helena, March 31-April 1, 1941. The examination covered 10 subjects and included 50 questions. An average of 75 per cent was required to pass. Six candidates were examined, 5 of whom passed and 1 failed. Nine physicians were licensed to practice medicine by reciprocity and 1 physician so licensed on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1941)	86.5*
Northwestern University Medical School		(1931)	89.7
University of Tennessee College of Medicine		(1933)	83.2
University of Manitoba Faculty of Medicine		(1940)	87.9
Universität Zürich Medizinische Fakultät		(1936)	86.6

School	FAILED	Year Grad.
University of Arkansas School of Medicine		(1907)

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1910), (1926), (1937)	N. Dakota, Washington
Rush Medical College		(1938)	Minnesota
The School of Medicine of the Division of the Biological Sciences		(1937)	Wyoming
University of Minnesota Medical School		(1931)	Minnesota
University of Nebraska College of Medicine		(1940)	Nebraska
Ohio State University College of Medicine		(1929)	Ohio
University of Texas School of Medicine		(1924)	Texas

School	LICENSED BY ENDORSEMENT	Year Grad.
Tufts College Medical School		(1930)

* This applicant has completed four years' medical work and will receive the M.D. degree on completion of internship. License has not been issued.

Minnesota April Report

The Minnesota State Board of Medical Examiners reports the written examination for medical licensure held at Minneapolis, April 15-17, 1941. The examination covered 12 subjects and included 60 questions. An average of 75 per cent was required to pass. Sixty-five candidates were examined, all of whom passed. One physician was licensed to practice medicine by reciprocity and 2 physicians so licensed on endorsement of credentials of the National Board of Medical Examiners. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Yale University School of Medicine		(1938)	88.6
Northwestern University Medical School		(1939) (1940)	92.1, 84.6, 86.6, 87.4,* 88.4
Rush Medical College		(1940)	87.6
The School of Medicine of the Division of the Biological Sciences		(1938)	90.6
Indiana University School of Medicine		(1939)	88
State University of Iowa College of Medicine		(1938)	88.1
Tulane University of Louisiana School of Medicine		(1937) (1939)	87.6, 87.5
Johns Hopkins University School of Medicine		(1938)	89.4
Harvard Medical School		(1938)	85
University of Minnesota Medical School		(1939)	87.2, 87.6,* (1940) 83,* 83.4,* 86, 86.1,* 86.3,* 86.4,* 86.5,* 86.6,* 87,* 87.1,* 87.2, 87.4,* 88.1,* 88.3,* 89.1,* 89.6,* 90, 90.1,* (1941) 83,* 86.3,* 86.4, 88.3,* 89.3,* 90.1, 90.4
St. Louis University School of Medicine		(1940)	88.1
Washington University School of Medicine		(1937)	88.2
University of Nebraska College of Medicine		(1937)	86.4
Creighton University School of Medicine		(1938)	90.3
Cornell University Medical College		(1938)	89.1, 89.4
Long Island College of Medicine		(1939)	88.8
University of Rochester School of Med. and Dentistry		(1938) (1939)	86.2, 87.1, 88.1
Ohio State University College of Medicine		(1938)	87.6
Temple University School of Medicine		(1938)	90
University of Pennsylvania School of Medicine		(1938) (1939)	86.2, 87.3, 90.6
University of Texas School of Medicine		(1938)	86.2
Medical College of Virginia		(1937)	89.3
University of Virginia Department of Medicine		(1938)	90.1
University of Wisconsin Medical School		(1938)	88.6
University of Manitoba Faculty of Medicine		(1940)	88.6
University of Western Ontario Medical School		(1937) (1938)	90.6, 86.2, 90.1
McGill University Faculty of Medicine		(1938)	88.3

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Chicago, The School of Medicine		(1939)	Illinois

School	LICENSED BY ENDORSEMENT	Year Grad.
Rush Medical College		(1939)
Harvard Medical School		(1938)

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Alleged Premature Discharge of Patient from Hospital and Abandonment of Treatment.—Milton Meiselman, a boy of 8 years at the time, was kicked in the left knee in November 1931. Shortly afterward he complained of pain in the leg, and his father called the defendant physician Schoolnik, who after examining the child stated that he was unable to treat the condition (diagnosed shortly thereafter as osteomyelitis) and suggested that the defendant physician Koster be summoned, which was done. On Koster's direction the boy was taken to the Crown Heights Hospital, Inc., a hospital conducted for profit. At that time the child was "desperately ill and required a blood transfusion." Koster operated on both legs and encased them in plaster casts. After the boy had been in the hospital eighteen weeks he was discharged, over the father's protest, allegedly because the parents had paid only about $350 of the hospital bill of approximately $1,000 that had been incurred to that date. At that time the patient was not cured: he had a "high temperature," he had casts on both legs and "both legs had open wounds through which pus was draining through windows" in the casts. The father, according to his testimony, was informed then by both defendant physicians that there was no need to transfer the child to a charitable hospital and that Schoolnik, under Koster's supervision, would give proper care to the boy at home. It was necessary to put dressings on the wounds about once a week, and this was done for five weeks by Schoolnik, who, it was alleged, on no occasion after the patient's discharge from the hospital consulted Koster. During this time the child suffered intense pain, his legs became increasingly worse, and on occasions Schoolnik, while attempting to remove parts of the cast, caused lacerations of the legs. Finally at Schoolnik's request the boy was sent to Kings County Hospital. When he was admitted to that institution, according to the testimony of Dr. Degenhardt, the physician who supervised his treatment there, both of his legs were in casts from the knee joints down, and he had a temperature of 101 F. On removing the casts Dr. Degenhardt found that the right ankle over the middle malleolus had a healed sinus, that there had been a long deep wound over the entire length of the left tibia, that there was a sinus over the lower end of the left femur and that there were large open wounds which were dirty and had thick white crusts about them. There was a moderate amount of thick, tenacious, purulent discharge from the region of the left tibia. Roentgenograms, subsequently taken, showed destruction of the proximal two thirds of the left tibia. The condition was then diagnosed as chronic osteomyelitis of the right tibia, left tibia and femur. The infectious process and

drainage continued until about four weeks after the boy's admission to the Kings County Hospital, at which time the improvement was so far advanced that Dr. Degenhardt put new casts, without drainage windows, on both legs from the toes to the upper third of both thighs. The next four years the boy was hospitalized and treated at the Kings County Hospital and in another institution and when finally discharged he was "severely crippled, walked with a limp, and one of his legs was stiff." He brought an action by his guardian ad litem against the Crown Heights Hospital, Inc., and the two defendant physicians, Schoolnik and Koster, for negligence and malpractice in treating him and for abandoning his case before he was cured. The trial court, even before the evidence on his behalf was concluded, dismissed the case, and its action was affirmed by the supreme court, appellate division, second department, New York. An appeal was then perfected to the Court of Appeals of New York.

On the record, said the Court of Appeals, as it stood when the trial court dismissed the action, the plaintiff had made out a prima facie case on the issue of malpractice against Schoolnik and Koster and of wilful abandonment of his case against the hospital and Koster. Sufficient evidence was presented to warrant a jury in awarding damages on those charges. At least, the jury might have found that the defendants had prematurely and wilfully abandoned the case while the patient was desperately ill and before he was cured without giving information or advice as to subsequent treatment or of the desperate and dangerous condition and character of the disease, all of which led to aggravation of his condition and illness. Common sense and ordinary experience and knowledge, such as is possessed by laymen, without the aid of medical expert evidence, might properly have suggested to the jury that the condition of the boy at the time that he was left without hospitalization and abandoned by the defendants was not compatible with skilful treatment. That the plaintiff's parents were misled by the conduct of the physicians to the child's detriment is inferable from the facts adduced. Ordinarily, to furnish a basis for the determination by a jury of unskilful practice and medical treatment by physicians, expert medical opinion evidence is required, when the subject matter to be inquired about is presumed not to be within common knowledge and experience and when legal inference predominates over statement of fact. However, when ordinary jurymen from their own experience and observation may draw their own conclusions, the opinion of experts is unnecessary.

At the trial, in connection with the testimony of Dr. Degenhardt, who had treated the boy at Kings County Hospital, the trial court, on the general objection that they were "incompetent, irrelevant and immaterial," refused to admit in evidence records of that hospital concerning the boy. The court permitted Dr. Degenhardt to refer to the records to refresh his recollection but excluded the records themselves, saying "You cannot have records when you have the witness present in court. That is the best evidence." No objection, said the Court of Appeals, was made to the admission of the records on the ground that no proper foundation had been laid for their admission or on other grounds than the general grounds stated. The blanket exclusion of the records on the grounds of incompetency, irrelevancy and immateriality left the plaintiff without proof on what may have been essential features of his case and relieved him of proceeding further with proof of facts essential to warrant their admission under the New York statute, which under stated circumstances authorizes the admission in evidence of entries and memorandums made in the regular course of any business, profession or calling. As the case stood, the records should have been admitted in evidence, and their exclusion was erroneous.

At the trial, the plaintiff called as an expert witness a Dr. Colmers, who had been licensed to practice in New York since 1936, had received his preliminary and medical education in Germany, had engaged for ten years in educational research after his graduation, thereafter for more than six years had been an assistant in the surgical clinic and chief surgeon of a hospital in Germany which had six hundred beds and thereafter was surgeon for ten more years on the staff of another hospital in Germany, specializing in general surgery. Since coming to the United States he had been connected with a stated hospital in New York. While practicing in Germany, according to his testimony, he became familiar with the treatment of osteomyelitis because he had personally treated hundreds of such cases and had also become familiar with the treatment of that disease throughout the world by reading literature on the subject. The trial court refused to permit him to testify as an expert on the sole ground that he was not competent to testify as to the proper practice in the United States in 1932, the year in which the defendants had treated and cared for the plaintiff. The nature of osteomyelitis, said the Court of Appeals, and its cause and probable effect were proper subjects for testimony of a competent medical witness. A showing was made that the witness was skilled in the profession to which the subject relates. No precise rule has been formulated and applied as to the exact manner in which such skill and experience must be acquired. Long observation and actual experience, though without actual study of the subject, qualify a witness as an expert in a subject. Likewise, a physician may qualify himself from study of the subject alone. The extent of the expert's qualifications may always be considered by a jury in determining the weight to be given to his testimony. Residence alone neither bars a physician from testifying as an expert nor qualifies him so to do. The question of the qualification of a witness to testify as an expert is for the determination of the trial court in its reasonable discretion, which discretion, when exercised, is not open to review unless in deciding the question the trial court has made a serious mistake, has committed an error of law or has abused its discretion. In the opinion of the Court of Appeals it was an error of law for the trial court to hold that Dr. Colmers was disqualified to testify at all as an expert. Whether he was qualified to express an opinion as to whether the medical and surgical treatment of the patient by the defendants was in accord with commonly accepted medical practice, on the record before it, the court was not called on to decide.

For the reasons stated, judgment dismissing the action was reversed and a new trial was ordered.—*Meiselman v. Crown Heights Hospital, Inc., 34 N. E. (2d) 367 (N. Y., 1941).*

Society Proceedings

COMING MEETINGS

American Association for the Study of Neoplastic Diseases, Washington, D. C., Sept. 4-6. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Hot Springs, Va., Sept. 11-13. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Association of Railway Surgeons, Chicago, Sept. 8-10. Dr. Daniel B. Moss, 547 West Jackson Blvd., Chicago, Secretary.

American Congress of Physical Therapy, Washington, D. C., Sept. 1-5. Dr. Richard Kovacs, 2 East 88th St., New York, Secretary.

American Hospital Association, Atlantic City, N. J., Sept. 15-19. Dr. Bert W. Caldwell, 18 East Division St., Chicago, Executive Secretary.

American Roentgen Ray Society, Cincinnati, Sept. 23-26. Dr. Carleton B. Peirce, Royal Victoria Hospital, Montreal, Canada, Secretary.

Central Association of Obstetricians and Gynecologists, New Orleans, Oct. 2-4. Dr. William F. Mengert, 515 Newton Road, Iowa City, Secretary.

Colorado State Medical Society, Estes Park, Sept. 17-20. Mr. Harvey T. Sethman, 537 Republic Bldg., Denver, Executive Secretary.

District of Columbia, Medical Society of the, Washington, Sept. 30-Oct. 2. Mr. Theodore Wiprud, 1718 M Street N.W., Washington, Secretary.

Indiana State Medical Association, Indianapolis, Sept. 23-25. Mr. Thomas A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Kentucky State Medical Association, Louisville, Sept. 29-Oct. 3. Dr. Arthur T. McCormack, 620 South Third St., Louisville, Secretary.

Michigan State Medical Society, Grand Rapids, Sept. 16-18. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing, Secretary.

Mississippi Valley Medical Society, Cedar Rapids, Iowa, Oct. 1-3. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

National Medical Association, Chicago, Aug. 18-22. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.

Nevada State Medical Association, Elko, Sept. 26-27. Dr. Horace J. Brown, P. O. Box 698, Reno, Secretary.

Oregon State Medical Society, Portland, Sept. 3-6. Dr. M. L. Bridgeman, 1020 S. W. Taylor St., Portland, Secretary.

Pacific Association of Railway Surgeons, Salt Lake City, Sept. 12-13. Dr. W. T. Cummins, 1400 Fell St., San Francisco, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 6-9. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.

Rocky Mountain Medical Conference, Yellowstone Park, Wyo., Sept. 2-4. Mr. W. H. Tibbals, 610 McIntyre Bldg., Salt Lake City, Secretary.

Virginia, Medical Society of, Virginia Beach, Oct. 6-8. Miss A. V. Edwards, 1200 East Clay St., Richmond, Secretary.

Washington State Medical Association, Seattle, Aug. 24-26. Dr. Vernon W. Spickard, 1305 Fourth Ave., Seattle, Secretary.

Wisconsin, State Medical Society of, Madison, Sept. 10-12. Mr. G. B. Larson, 110 East Main St., Madison, Assistant Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1931 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

11:361-462 (May) 1941

*Hemoconcentration as Related to Shock. V. H. Moon, Philadelphia.—p. 361.

Preparation and Preservation of Human Plasma: III. Freezing of Plasma and Preservation in Frozen State. M. M. Strumia, Bryn Mawr, Pa.; J. J. McGraw, Philadelphia, and J. Reichal.—p. 388.

Prevention of Nonspecific and Prezone Reactions in Wassermann Test with Serums and Spinal Fluids by Addition of Egg Albumin to Complement. J. A. Kolmer, with technical assistance of Elsa R. Lynch, Philadelphia.—p. 402.

Studies with Agar Cup-Plate Method: IV. Correlation of Agar Cup-Plate Data with Antiseptic Dilution Data. Ruth E. Miller and S. B. Rose, Philadelphia.—p. 414.

Clinical and Laboratory Observations on So-Called "Kidney Threshold for Glucose." K. Y. Yardumian and A. N. Alpern, Pittsburgh.—p. 425.

Myelogenous Leukemia Changing to Monocytic Leukemia: Report of Case. B. E. Hall and C. H. Watkins, Rochester, Minn.—p. 443.

Hemoconcentration and Shock.—Moon studied hemoconcentration incident to experimental shock, intestinal obstruction, pulmonary edema, burns, bile peritonitis, various extracts of tissue, poison, drug and chemical agents and other conditions (anaphylaxis) affecting the circulation. More than 300 animals (dogs, cats, guinea pigs, rabbits, rats and monkeys) were used. The agents (venoms, bacterial toxins, cholic salts, histamine, bacterial products, peptone, barbital and paraldehyde) and the conditions mentioned produced hemoconcentration regularly in each animal and each species. When recovery followed, the blood returned to its normal concentration. When death resulted, the engorgement and stasis of blood in capillaries and venules, ecchymoses, serous effusions and edema in soft tissues indicated endothelial damage in extensive visceral areas. These effects are related to the syndrome of shock. Capillary atony results in anoxia of the tissues, and anoxia will cause capillary atony. This is a most important and significant relationship. These two factors are reciprocal; either of them, operating alone, will bring the other into action. Thus the mechanism is self perpetuating and operates as a vicious circle. Its progress, if uninterrupted, leads to irreversible changes and death. The physiologic mechanism which regulates the movement of fluid between the blood and the tissues depends essentially on a normal semipermeable endothelium. Capillary walls so damaged that they allow whole plasma to escape cannot maintain an effective differential between the composition of the intravascular and extravascular fluids. Such a condition disarranges the relationship between water balance and absorption. Serious hemorrhage produces clinical manifestations of shock. Frequently its effects and those of anesthesia and trauma are combined. Any loss of blood or fluid contributes toward shock, and its contributory effect is proportional to the amount of blood and/or fluid lost. Hemoconcentration will distinguish between the uncomplicated effects of hemorrhage and those of shock. Shock is not limited to extensive trauma, surgery or burns. The same type of circulatory failure develops from poisoning with drugs and chemicals, abdominal emergencies, irradiation and serum sickness, metabolic intoxications and unusually severe infections. Hemoconcentration is the earliest detectable sign of threatened circulatory deficiency of capillary origin. It is as ominous as a decline in blood pressure. But hemoconcentration occurs early when compensation is effective, while hypotension indicates that compensation has failed and that death is imminent. Heretofore hemoconcentration has not been recognized, understood or utilized by physicians in their clinical studies.

American Journal of Medical Sciences, Philadelphia

201:629-784 (May) 1941

Observations on Pathologic Physiology of Insular and External Secretory Functions of Human Pancreas. A. O. Whipple and L. Bauman, New York, with technical assistance of Margaret Hamlin.—p. 629.

Vitamin C in Treatment of Diabetes. L. B. Owens, J. Wright and Edna Brown, Cincinnati.—p. 636.

*Some Effects of Iron on Hemoglobin Formation. W. H. Fowler and Adelaide P. Barer, Iowa City.—p. 642.

The Question of "Chronic Appendicitis." J. H. L. Heintzelman and F. A. Evans, Pittsburgh.—p. 651.

Demonstration That in Normal Man no Reserves of Blood Are Mobilized by Exercise, Epinephrine and Hemorrhage. R. V. Ebert and E. A. Stead Jr., Boston.—p. 655.

Effect of Arterial and Venous Constriction Induced by Paredrine (p-Hydroxy-α-Methylphenylethylamine Hydrobromide) on Lung Capacity and Its Subdivisions. A. Iglauer and M. D. Altschule, Boston.—p. 664.

Comparative Value of Ether and Paraldehyde as Agents for Measurement of Arm to Lung Circulation Time in Fifty Patients With and Fifty Patients Without Heart Failure. H. H. Hussey and S. Katz, Washington, D. C.—p. 669.

Characteristic Electrocardiograms in Left Ventricular Strain With and Without Axis Deviation. L. D. Kaplan and L. N. Katz, Chicago.—p. 676.

Alterations of T Waves Caused by Change of Posture. D. Sherf and J. Weissberg, New York.—p. 693.

*Fat Tolerance Tests in Psoriasis. E. B. Le Win and I. Zugerman, Philadelphia.—p. 703.

Urinary Excretion of Sulfapyridine in Rat: Relationship of Liver to Urolithiasis. J. V. Scudi and H. J. Robinson, Rahway, N. J.—p. 711.

Sulfathiazole in Treatment of Pneumonia in Infants and Children. A. V. Stoesser and R. Mooney, Minneapolis.—p. 718.

Distribution of Sulfanilamide Between Blood and Cerebrospinal Fluid, with Special Reference to Intraspinal Treatment. S. Katzenelbogen, B. A. Cruvant and C. Silverberg, Washington, D. C.—p. 724.

Failure of Para-Aminobenzoic Acid to Inhibit Sulfonamide Rashes and Fever. E. Strauss and M. Finland, Boston.—p. 730.

Mode of Action of Magnesium Sulfate in Reducing Hypertension of Acute Glomerulonephritis. M. I. Rubin and M. Rapoport, Philadelphia.—p. 734.

Alimentary Azotemia: Clinical Syndrome Occurring as Part of Bleeding Peptic Ulcer Complex. C. F. Chunn, Vicksburg, Miss, and H. N. Harkins, Detroit.—p. 745.

Vitamin C Studies in the Aged. H. A. Rafsky and B. Newman, New York.—p. 749.

Scarlatiniform Erythema with Systemic Reaction Following Inunction with Mercurial Ointment. O. E. Billo, New York.—p. 756.

Effects of Iron on Hemoglobin Formation.—Fowler and Barer gave iron and ammonium citrates or reduced iron to 25 nurses and young adults healthy except for a mild anemia. These preparations produced an increase in the blood hemoglobin, which reached a peak at the end of from ten to twelve weeks. Following this peak there was a gradual reduction in the hemoglobin level regardless of whether or not therapy was continued for only the sixty days or throughout the period of observation. The increase in hemoglobin, the peak and subsequent reduction were similar in patients with mild grades of anemia and in individuals with low normal hemoglobins, although in the latter group the hemoglobin fell to the pretreatment level, whereas in the former it remained elevated but at a level below the point of maximal response. The results suggest a stimulating action of iron on hemoglobin formation in addition to its action as replacement therapy.

Fat Tolerance Tests in Psoriasis.—There is a growing tendency to attribute psoriasis to a generalized disturbance in fat metabolism. Le Winn and Zugerman studied the fat tolerance of 10 patients with this disease. Changes in the total cholesterol of whole blood were used as an index of the degree of alteration of the blood lipid level. The patients showed no significant changes as compared with 13 nonpsoriatic subjects acting as controls. The incidence of psoriasis in conditions such as hypothyroidism, diabetes mellitus, xanthelasma, nephrosis and pregnancy, exhibiting hypercholesteremia or hyperlipemia, was reviewed. Only pregnancy was found to have a relationship to psoriasis, and its influence was beneficial. The amelioration of psoriasis in starvation, low fat intake and pregnancy and in individuals receiving adrenal cortex extract or hypophysial corticotropic hormone is, in the authors' opinion, the result of the mobilization of fats and lipoids from all the tissues. This removes from the skin substances whose presence is irritating. Psoriasis is a disease due to conditions existing locally in the skin. A generalized disturbance in fat metabolism may possibly contribute to such local conditions.

American J. Obstetrics and Gynecology, St. Louis

41:733-914 (May) 1941. **Partial Index**

Study of Corpora Lutea and Endometriums in Patients with Uterine Fibroids. J. I. Brewer and H. O. Jones, Chicago.—p. 733.
Analysis of Some Factors Associated with Posttoxemic Hypertension. L. C. Chesley, W. H. Somers, H. R. Gorenberg and J. A. McGeary, Jersey City, N. J.—p. 751.
*Vitamin K Administered to Mother During Labor as Prophylaxis Against Hemorrhage in Newborn Infant. A. C. Beck, E. S. Taylor and R. F. Colburn, Brooklyn, p—765.
Hyperthyroidism at Menopause. M. G. Wohl and N. Pastor, Philadelphia.—p. 792.
Advantages of Conservative Obstetrics as Shown by Examination Six Weeks Post Partum: Review of 2,000 Cases. H. B. Nelson and D. Abramson, Boston.—p, 800.
*Sickle Cell Anemia in Pregnancy: Review of Literature and Report of Six Cases. A. J. Kobak, P. J. Stein and A. F. Daro, Chicago. —p. 811.
Prolapse of Umbilical Cord: Analysis of 155 Cases. G. A. Bourgeois, Jersey City, N. J.—p. 837.
Anoxia Following Nitrous Oxide Anesthesia for Labor. T. R. Turino and H. R. Merwarth, Brooklyn.—p. 843.
Jelly Contraceptives: Three Year Investigation. I. F. Stein and M. R. Cohen, assisted by Rita Nielsen, Chicago.—p. 850.
Observations on Occurrence of Clostridium Welchii in Vagina of Pregnant Women. J. F. Sadusk Jr., New Haven, Conn., and C. P. Manahan, Baltimore, with technical assistance of E. H. Stewart, Baltimore.—p. 856.
Clinical Experiments with Diethylstilbestrol: I. Estrogen Withdrawal Bleeding in Primary and Postmenopausal Amenorrheic Women. A. Palmer, San Francisco.—p. 861.
Presence of Excessive Amounts of Gonadotropic Principle in Urine of Patients with Thyroid Disease. L. P. Howell, Della G. Drips and H. C. Fisher, Rochester, Minn.—p. 868.
Clinical Experience with Pregneninolone. E. S. Burge and H. J. Holloway, Chicago.—p. 873.
Malaria Complicating Pregnancy: Report of Twenty-Seven Cases. R. Torpin, Augusta, Ga.—p. 882.
Intestinal Obstruction Complicating Pregnancy. C. J. Barone, H. A. Power, C. L. Kuhn, Pittsburgh.—p. 890.
Central Placenta Praevia with Accessory Lobe. S. L. Siegler and J. J. Sachs, Brooklyn.—p. 901.

Vitamin K Administered During Labor.—Beck and his associates studied the clotting activity on the first, second and fourth days of life of 200 infants. Vitamin K was given during labor to alternate mothers. The clotting activity of the 100 control infants on the first day of life was approximately 70 per cent of that observed in normal adults. A physiologic fall in prothrombin usually occurred on the second day. This fall at times may reach dangerously low levels. Evidence of hemorrhage was present in 50 per cent of the infants whose clotting activity fell below 35 per cent of normal. By the fourth day clotting values tended to approach the first day levels and usually reach the first day level by the sixth day. A clotting activity in newborn infants approaching that of the normal adult may be obtained on the first day by the prophylactic administration of vitamin K to the mother during labor. Vitamin K administered to the mother during labor also prevents the physiologic fall in prothrombin values. Only 1 infant among the 100 whose mothers received vitamin K during labor had a clotting value on the fourth day of 38 per cent of the normal adult value. Vitamin K given during labor and ante partum should prevent some of the hemorrhages which occur in newborn infants. Only 5, or 0.5 per cent, of 1,022 infants whose mothers received vitamin K showed any evidence of hemorrhage in contrast with 21, or 2 per cent, of 1,037 control cases. Accordingly, vitamin K should be valuable in reducing the incidence of hemorrhage in all newborn infants, and especially so in premature infants or after long labor and operative procedures.

Sickle Cell Anemia in Pregnancy.—The report of Kobak and his co-workers on 6 cases of sickle cell anemia occurring during pregnancy brings the total to 17. The anemia is believed to be a familial disease transmitted by both sexes as a dominant mendelian characteristic. It is seen only in the younger age groups; most persons with active signs of the disease die (either from the effects of the anemia or from intercurrent diseases) before they are 30 years of age. This is suggested by the ages of the 17 patients with sickle cell anemia during pregnancy; the youngest patient was 18 and the oldest was 30, the average age being 22.4 years. Only 3 of 15 became multiparas. The viable stage of gestation was reached by 13 of the 17 mothers. There were 5 deaths; 4 necropsies were held. Abdominal crisis was the terminal cause of 2, multiple thrombi and complicating pulmonary embolus with multiple terminal infarcts of 1, puerperal sepsis of 1 and hepatosplenomegaly and parenchymatous degeneration of various organs, including the heart, of the remaining patient. Certain clinical symptoms are frequently observed. The patients are usually thin and underdeveloped. Complaints consist of frequent attacks of respiratory infections, joint and muscle pains, vague abdominal pains with nausea and vomiting, occasional fever, ulcers of the legs, jaundice and cardiorespiratory symptoms associated with a severe anemia. The disease is characterized by remissions and exacerbations. During pregnancy, hypertensive or preeclamptic toxemia develops frequently in these patients. Roentgenologically osteoporosis of the long bones is commonly seen, while the skull shows increased thickness of the calvarium and loss of continuity of the outer table, and the marrow cavity is replaced by altered bone formations. The final diagnosis rests on the blood picture. During acute episodes there is a profound anemia; the erythrocyte count is usually below 2,500,000 with a corresponding decrease in hemoglobin. A leukocytosis far in excess of that expected in pregnancy is seen. Most of the erythrocytes are sickle shaped. The prognosis is grave, and most of the patients die before the age of 30. Pregnancy apparently has an unfavorable effect; 5 of the 15 whose clinical history is on record did not survive the pregnancy. At least 2 additional mothers have died sometime subsequent to the publication of their case reports. The prognosis for the fetus in utero is also unfavorable. Available data of 15 mothers reveal that 5 had one or more abortions. These mothers had thirty-seven pregnancies, of which only twenty-five were carried to viability. Nineteen of the viable babies were born alive, whereas 6 were macerated stillbirths. The blood of at least 8 of the babies born alive had sickled erythrocytes. Follow-up studies may have enlarged this number. Intensive antianemic therapy and multiple blood transfusions have had a measure of success. The authors believe the improvement to be only temporary. The treatment of any intercurrent disorder and general supportive measures (rest and a diet high in calory and vitamin content) aid improvement.

Annals of Internal Medicine, Lancaster, Pa.

14:1969-2166 (May) 1941

*Factors Influencing Fatality Rate of Pneumococcic Pneumonia Treated with Sulfonamide Compounds. H. F. Flippin, L. Schwartz and J. H. Clark, Philadelphia.—p. 1969.
Acute Syphilitic Nephrosis in Adults: Three Cases, E. W. Patton, Nashville, Tenn., and M. B. Corlette, Pasadena, Calif.—p. 1975.
Hormone, Central and Renal Origin of "Essential" Hypertension (Cerebral and Renal Arteriosclerotic Ischemia as Causal Factors). W. Raab, Burlington, Vt.—p. 1981.
Clinical Significance of Low or "Flat" Oral Glucose Tolerance Curve. M. J. Lepore, New York.—p. 2008.
Clinical Significance of Blood Volume. J. G. Gibson, 2d, Boston.—p. 2014.
Acute Occlusion of Peripheral Arteries: Clinical Analysis and Treatment. G. Saland, New York.—p. 2027.
*Treatment of Barbiturate Intoxication, with Special Reference to Picrotoxin: Report of Twenty Cases. J. P. Anderson, Cleveland. —p. 2037.
Circumscribed and Isolated Bronchiectasis. J. Chapman and J. A. Wiggins, Sanatorium, Texas.—p. 2047.
Therapeutic Effectiveness and Potency of Digilanid in Treatment of Congestive Heart Failure. R. C. Batterman, D. V. Hollman and A. C. DeGraff, New York.—p. 2058.
Follicular Type of Malignant Lymphoma: Survey of Sixty-Three Cases. E. A. Gall, H. R. Morrison and A. T. Scott, Boston.—p. 2073.
Endemic Typhus Fever in Hawaii. S. E. Doolittle, Honolulu, Hawaii. —p. 2091.
Insight as an Aim in Psychotherapy. H. Cleckley, Augusta, Ga. —p. 2115.

Fatality Rate of Pneumococcic Pneumonia.—Flippin and his associates discuss factors which influence the prognosis of pneumonia. Their study is based on the results among 800 adult pneumococcic pneumonia patients, the mortality among whom was 10 per cent. Fifty-four and two-tenths per cent of the patients were 40 or more years of age. Among the fatalities 83.7 per cent represented patients in this age group. The mortality rate was 3.5 per cent for patients 12 to 39 years of age and 15.4 per cent in the higher age group. This significant

difference is largely a result of the higher incidence of associated diseases in older patients. The age of the patient is probably the most important single factor in the prognosis of this disease. Treatment during the first four days of the disease, with a mortality rate of 5.6 per cent, was received by 65.3 per cent of the patients, which represented 36.2 per cent of the deaths. Among the patients treated after the fourth day of illness there was a mortality rate of 18.4 per cent, and 63.8 per cent of the fatalities were among these patients. The first three types of pneumococci gave the highest mortality rate (12.2 per cent); 17.4 per cent were type III infections (often in elderly and debilitated patients) with a mortality rate of 20 per cent as compared to 7 and 10.5 per cent for types I and II respectively. The type of pneumococcic pneumonia has a direct bearing on prognosis. The incidence of bacteremia for all the patients was 12 per cent, whereas 40 per cent of the patients who died had positive blood stream infections. The fatality rate for the bacteremic patients was 32.3 per cent. Complications developed in 48 patients. They were mild in 35 and none of these died. The mortality rate was 53.8 per cent for the remaining 13 with severe complications. Associated disease was present in 264 patients. Race and sex appeared to be of little or no prognostic significance. The widespread distribution and administration of sulfonamide therapy in pneumonia will have a definite influence on hospital practice, as more patients will be treated at home and only the severely ill will be sent to a hospital. This will undoubtedly result in a reduction in the general mortality but an increase in hospital fatality rates. The use of the drugs for many types of infections will probably increase drug sensitivity, and the problem of chemotherapeutic toxicity may become more acute. Other factors which have a bearing on the prognosis are the geographic location, rural or urban community, the economic status, occupational hazards, the presence of unsuspected or untreated disease, the time of seeking medical aid and overindulgence in alcohol and the habits of a patient.

Treatment of Barbiturate Intoxication.—Anderson treated 20 patients for barbiturate poisoning; all of them took the drug with suicidal intent. Picrotoxin was used for all but 6 of the patients, in whom the intoxication was mild and responded to other methods of treatment. Study shows that there is a considerable margin of safety in the use of barbiturates. No extreme intoxications occurred with quantities less than twelve times the usual dosage. The interval between the ingestion of the drug and the beginning of treatment is extremely important. Even large doses may not cause serious consequences if gastric lavage is carried out within a few hours. Patients with bulbar paralysis, hyperpyrexia, tachycardia and shallow respirations die unless some powerful stimulant is employed immediately. Because of depressed respiratory function and the resulting atelectasis, the first signs of pneumonia must be detected and sulfapyridine therapy instituted at once. Three of the author's patients with extensive pneumonia and severe barbiturate poisoning recovered. In severe cases ordinary stimulants, caffeine, strychnine and nikethamide, are ineffective. Solutions of dextrose and sodium chloride intravenously, supplemented in some instances by injections of salyrgan, have an important place in therapy. When cyanosis is present, oxygen by the inhalation method is helpful. Metrazol was used for 2 patients; 1 of them recovered with no other treatment, and in the other picrotoxin was substituted but the patient died. Picrotoxin is the drug of choice in treating barbiturate intoxication. It is a powerful stimulant, and the author has observed no ill effects from its use. For best results it should be instituted promptly if the reflexes are abolished and should be given intravenously at the rate of approximately 1 cc., or 3 mg., per minute until the corneal reflexes reappear and the patient responds to painful stimuli. Thereafter it should be repeated every one or two hours in sufficient dosage to keep the corneal reflexes active. Whenever the patient is allowed to lapse into a severe depression for several hours his chances of recovery are greatly lessened. Giant bullas occurred in pressure areas of several patients. The dosage of picrotoxin was decreased deliberately in 1 or 2 instances, until it was ruled out as the cause. The author believes that their occurrence is reported for the first time. The giant bullous lesions varied in size from 2.5 to 10 cm. Severe peripheral neuritis developed in 1 patient and similar, though less severe, symptoms in another. This emphasizes the importance of nutritional deficiency. Many of the patients are psychoneurotic and there is little point in preventing their suicide unless the proper psychiatric and social treatment is furnished afterward. Some are normal mentally, but their living conditions are so poor that they are driven to destroy themselves. Investigation by a social worker, followed by encouragement and the necessary aid, may restore some of the latter patients to a useful place in the community.

Archives of Internal Medicine, Chicago

67:895-1098 (May) 1941

*Pressor Properties of Extracts from Normal and from Ischemic Kidneys. J. R. Williams Jr., Nashville, Tenn.; A. Grollman, Baltimore, and T. R. Harrison, Nashville, Tenn.—p. 895.
*Primary Bacillus Friedländer (Klebsiella Pneumoniae) Pneumonia: Therapy of B. Friedländer B Pneumonia. E. Perlman and J. G. M. Bullowa, New York.—p. 907.
*Use of Sulfanilamide and Sulfapyridine in Therapy of Subacute Bacterial Endocarditis. M. Friedman, with collaboration of A. Selzer and Patricia McLean, San Francisco.—p. 921.
Correlation of Velocity of Blood Flow and Basal Metabolic Rate. S. Baer and H. J. Isard, Philadelphia.—p. 939.
Osteogenesis Imperfecta: Its Incidence and Manifestations in Seven Families. F. R. Reisenman and W. M. Yater, Washington, D. C. —p. 950.
Obesity: Its Pathogenesis, Etiology and Treatment. J. Bauer, Hollywood, Calif.—p. 968.
Right-Sided Aorta with Descending Aorta Simulating Aneurysm. Ursula J. Roche, I. Steinberg and G. P. Robb, New York.—p 995.
Life Expectancy in Conductive Disturbances Affecting Ventricular Complex of Electrocardiogram: I. General Considerations of Bundle Branch Block with Concordant and with Discordant Graphs and Wide S Wave Pattern, Based on 1,611 Cases. F. A. Willius, T. J. Dry and R. Reeser Jr., Rochester, Minn.—p. 1008.
Id: II. Special Consideration of Bundle Branch Block with Concordant Graphs and with Discordant Graphs. R. Reeser Jr., F. A. Willius and T. J. Dry, Rochester, Minn.—p. 1027.
Id: III. Special Consideration of Wide S Wave Pattern, with Report of Three Cases. T. J. Dry, F. A. Willius and R. Reeser Jr., Rochester, Minn.—p. 1034.
Urinary Protein Partitions in Amyloid Nephrosis. S. Berg, Newark, N. J.—p. 1050.
Diseases of Heart: Review of Significant Contributions Made During 1940. A. Graybiel, with editorial assistance of P. D. White, Boston. —p. 1061.

Pressor Activity of Kidneys.—Williams and his associates produced unilateral renal ischemia in dogs and rats, prepared fractions from such kidneys by extraction with a solution of sodium chloride or by precipitation with alcohol and determined their pressor action. The results were as follows: 1. The extracts from ischemic kidneys of dogs usually had a distinctly greater pressor effect than similar extracts from normal kidneys of the same animal. When the degree of ischemia was so severe as to induce necrosis, the abnormal kidney had less pressor effect than the normal organ. 2. The extracts from normal rat kidneys had as much or more pressor effect when compared with those of their ischemic kidneys, provided the fractions were tested soon after being prepared. 3. One important similarity was displayed by kidneys from both rats and dogs: on standing, the extracts from normal kidneys usually became less pressor and those from the ischemic organs tended to become more pressor. 4. When enzymatic processes were reduced to a minimum by rapid freezing and desiccation of the kidneys while frozen, the extracts in many instances had practically no pressor effect. However, usually a well defined pressor action developed if such inactive, freshly prepared extracts were allowed to stand. The authors believe that the divergent results of the pressor activity of normal and ischemic kidneys obtained by previous investigators were apparently due to (1) difference in the species of animals used as a source of kidneys and (2) changes occurring in the activity of the extracts after preparation. The apparent renin content of an extract is extremely variable; it may increase or decrease with time or even be absent under certain conditions.

Primary Bacillus Friedländer Pneumonia.—Perlman and Bullowa state that among 2,450 cases of pneumonia there were 37, or 1.5 per cent, caused by the Friedländer bacillus; in 29 the causative organism was Bacillus Friedländer A and in 8 B. Friedländer B. Friedländer pneumonia occurs predominantly in older people and it occurs much more frequently in men than in women; 32 of the 37 patients were men. Of 29 patients with Friedländer A pneumonia, 28 were men. The incidence

of bacteremia averages about 70 per cent. In the present series (A and B forms) it was 32.5 per cent; 7 of those with Friedländer A pneumonia and 5 of those with Friedländer B pneumonia. The mortality among the patients with Friedländer A and B pneumonia did not differ significantly, being 86 and 75 per cent, respectively, from that reported by other workers. There appears to be no relationship between bacteremia and mortality; in fact, the authors' patients without bacteremia had a somewhat higher mortality than those with bacteremia. Of 23 patients with Friedländer A pneumonia, 6 of whom had bacteremia, treated with sulfanilamide or sulfapyridine or serum alone or combined with chemotherapy 20 died, and of 6 untreated patients, 1 of whom had bacteremia, 5 died. All the 13 patients treated with serum alone, 3 with rabbit and 10 with horse serum, died. Of 6 treated patients with Friedländer B pneumonia, 4 of whom had bacteremia, 5 died, and of 2 untreated patients the 1 without bacteremia died. Serum, sulfanilamide (or sulfapyridine) or the combined therapy seemed ineffectual in treating patients with B. Friedländer pneumonia. One hopeful trend could be seen among the patients with Friedländer A pneumonia, for 3 of 8 patients treated with the drug recovered.

Sulfanilamide and Sulfapyridine for Endocarditis.—According to Friedman, it is of utmost importance in treating bacterial endocarditis chemotherapeutically to know whether the drugs act directly on the invading micro-organism or act by increasing tissue resistance against invasion. If sulfanilamide or sulfapyridine is to be effective, the drug must not only be able to destroy or definitely inhibit the growth of Streptococcus viridans without the physical aid of living tissue but also be able to penetrate the fibrin-platelet barrier characteristic of the disease in sufficient concentration to affect its results. If a drug's effectiveness depends on the potentiation of living tissue resistance or if it is unable to penetrate this barrier which protects the organisms and isolates them from living tissue, it will probably be of no value in bacterial endocarditis. The author carried out a series of experiments to determine (1) the degree of penetrability of both drugs through fibrin-platelet masses, (2) their in vitro effects on three strains of Streptococcus viridans, (3) effects in vivo on animals harboring these strains of Str. viridans but with the complete isolation of the micro-organisms from living tissue, (4) the effects of prolonged administration of both drugs on infected animals and (5) the actual results of the drugs administered to patients suffering with subacute endocarditis due to Str. viridans. Sulfanilamide or sulfapyridine was not able to penetrate easily the fibrin-platelet mass containing Str. viridans. The production of a focus of protected growth of Str. viridans in the abdomen of the rabbit with the concomitant parenteral administration of sulfapyridine or sulfanilamide to the animal showed that the two drugs were no more effective against Str. viridans in vivo than they were in vitro; but if the inoculum was small and its growth was not allowed to progress too far, the effectiveness of either drug, particularly sulfapyridine, was such that it was supposed that living tissue would have furnished no further aid in destroying the organism. It may be that the powerful effect of these drugs when given parenterally to animals infected with the hemolytic streptococcus, as contrasted with their possible equivocal action on the same organism in the test tube, is due to the fact that the bacterial invasion in the body is relatively slight and the number of bacteria per unit of invaded tissue is far less than that present in various test tube experiments. Despite the effectiveness of the drugs on Str. viridans when they were placed in immediate contact with a small inoculum, if as little as six hours were allowed to elapse between contact of either of the drugs and the initial inoculum of Str. viridans their bactericidal action, despite concentrations, was nil. The experimental production of a fibrin-platlet mass infected with the organism but separated from living tissue by means of a porcelain filter capsule led to a persistence of infection despite the quantity and duration of administration of either drug. The effectiveness of the drugs was negligible in 12 patients with subacute endocarditis caused by Str. viridans treated with sulfanilamide or sulfapyridine or both. Three of the patients received intensive heparin therapy in conjunction with sulfapyridine or sulfanilamide, and the results were equally negative. Although Friedman, Hamburger and Katz were the first to suggest and use heparin in subacute endocarditis and although favorable results have been reported by Kelson and White, it is now believed by them that its action either alone or with sulfapyridine is of no real value.

Bulletin of Johns Hopkins Hospital, Baltimore

68:353-424 (May) 1941

Observations on Morphology and Functions of Some Components of Coronary Circuit. J. T. Wearn, Cleveland.—p. 353.
Alterations in Heart Accompanying Growth and Hypertrophy. J. T. Wearn, Cleveland.—p. 363.
Studies in Vitamin A.: Relation of Blood Level and Adaptation to Dim Light to Diet. H. W. Josephs, Margaret Baber and H. Conn, Baltimore.—p 375.
Result of Contact with 2,400 Volt Circuit: Report of Unusual Case. F. H. Hesser, Baltimore.—p. 388.
Multiple Self-Inflicted Subcutaneous Abscesses: Case Report. A. Klein, Baltimore.—p. 409.
Loss of Virulence of Treponema Pallidum in Citrated Blood at 5 C. O. Bloch Jr., Baltimore.—p. 412.

Canadian Public Health Journal, Toronto

32:231-286 (May) 1941

Determination of Nutritional Status. E. W. McHenry, Toronto.—p. 231.
Dietary Survey in Halifax. E. G. Young, Halifax, N. S.—p. 236.
Inquiry into Customary Nutrition of Families with Small Salaries in the City of Quebec. J. E. Sylvester and Honoré Nadeau, Quebec, Que.—p. 241.
Dietary Investigation in Toronto Families Having Annual Income Between $1,500 and $2,400. J. M. Patterson and E. W. McHenry, Toronto, Ont.—p. 251.
Dietary Survey in Edmonton. G. Hunter and L. B. Pett, Edmonton, Alta.—p. 259.

Delaware State Medical Journal, Wilmington

13:69-84 (May) 1941

Renal Aspects of Hypertensive Vascular Disease. E. Weiss, Philadelphia.—p. 69.
Genitourinary Disease and Diagnosis. E. L. Stambaugh, Lewes.—p. 79.

Florida Medical Association Journal, Jacksonville

27:533-580 (May) 1941

Exanthem Subitum (Roseola Infantum). C. C. Rudolph, St. Petersburg.—p. 547.
Staphylococcus Toxoid in Impetigo. T. F. Hahn, DeLand.—p. 549.
Review of Treatment of Atrophic Arthritis. J. P. Rowell, St. Petersburg.—p. 551.
Summary of Ten Years' Practice in Obstetrics. W. C. Thomas, Gainesville.—p. 557.
Hematuria as Result of Sulfanilamide Therapy: Report of Two Cases. N. Weil Jr., Jacksonville.—p. 562.
Excretory Function of Small Intestine in Renal Insufficiency. E. B. Campbell, St. Petersburg.—p. 565.

Journal of Experimental Medicine, New York

73:681-806 (June) 1941

Quantitative Chemical Studies on Complement or Alexin: I. Method. M. Heidelberger, New York.—p. 681.
Id.: II. Interrelation of Complement with Antigen Antibody Compounds and with Sensitized Red Cells. M. Heidelberger, A. J. Weil and H. P. Treffers, New York.—p. 695.
Inheritance in Guinea Pigs of Susceptibility to Skin Sensitization with Simple Chemical Compounds. M. W. Chase, New York.—p. 711.
Casein Digests Parenterally Utilized to Form Blood Plasma Protein. S. C. Madden, L. J. Zeldis, A. D. Hengerer, L. L. Miller, A. P. Rowe, A. P. Turner and G. H. Whipple, Rochester, N. Y.—p. 727.
Simplified Perfusion Apparatus for Maintenance of Living Organs in Vitro. C. Galli-Mainini, Boston.—p. 745.
Nature of Nonparalytic and Transitory Paralytic Poliomyelitis in Rhesus Monkeys Inoculated with Human Virus. A. B. Sabin and R. Ward, Cincinnati.—p. 757.
*Natural History of Human Poliomyelitis: I. Distribution of Virus in Nervous and Non-Nervous Tissues. A. B. Sabin and R. Ward, Cincinnati.—p. 771.

History of Human Poliomyelitis.—Sabin and Ward performed necropsies in 11 fatal cases of poliomyelitis and examined various tissues to determine whether the virus was predominantly distributed in any one system. The results show that the virus is so distributed in certain regions of the nervous system and in the alimentary tract. This knowledge permits the following revaluation of the various prevailing hypotheses of the disease in human beings: 1. The absence of demonstrable virus in the olfactory bulbs and anterior perforated substance indicates that in man the olfactory pathway need not be affected. 2. The absence of infective virus in the nasal mucosa suggests that this is not the site of virus multiplication and dissemination.

3. The virus was not present in the salivary glands, indicating that the saliva is not an elimination route. 4. The positive results with the tonsils and pharyngeal mucosa are probably due to the pharyngeal tissue rather than to the tonsils. 5. In the alimentary tract the virus is present not only in the contents but also in the washed walls of various parts of the tract, including the pharynx, ileum and occasionally the colon. 6. Infection of the walls of the alimentary tract appears to be the result neither of primary localization nor the port of entry. 7. Its distribution in the central nervous system is limited to certain areas and is not as indiscriminately disseminated as viruses (e. g., equine encephalomyelitis) which can invade through the blood vessels or those (e. g., rabies) which are capable of extensive centrifugal spread. 8. In the absence of evidence of any appreciable centrifugal spread to peripheral collections of nerve cells, the demonstration of virus in the abdominal sympathetic ganglions of 1 case suggests one of the possible routes of virus progression in certain instances. The pattern of virus distribution in human poliomyelitis, according to the study, points to almost the entire alimentary tract as the primary site of attack by the virus and supports in no way the concepts involving either the olfactory pathway or the respiratory tract. The distribution also militates against the cutaneous route, although it is conceivable that occasional infection through the broken skin may be possible. There appears to be much similarity between this picture of human poliomyelitis and that of Theiler's spontaneous mouse encephalomyelitis or poliomyelitis, in which Olitsky demonstrated that the virus is carried in the intestinal tract of many normal mice, although paralysis develops in only 1 of 2,000 to 5,000 mice. The subsequent demonstration by Theiler and Gard and by Olitsky that the infectious agent is also present in the washed intestinal wall and that this is the most probable origin of the virus in the intestinal contents brings out a most remarkable analogy between the two diseases.

Journal of Immunology, Baltimore

40:399-518 (April) 1941

Concerning Mechanism of Anaphylactic and Tryptic Shock. M. Rocha Silva, São Paulo, Brazil, South America.—p. 399.
Studies of X Strain (Dyer) of Rickettsia Burneti: I. Chorioallantoic Membrane Infections. F. M. Burnet and Mavis Freeman, Melbourne, Australia.—p. 405.
Id.: II. Guinea Pig Infections, with Special Reference to Immunologic Phenomena. F. M. Burnet and Mavis Freeman, Melbourne, Australia.—p. 421.
Antitoxin Formation After Intravenous or Subcutaneous Injection of Plain or Alum Diphtheric Toxoid. J. Freund and Mary V. Bonanto, Otisville, N. Y.—p. 437.
Nonspecific Flocculation of Scarlet Fever Toxin and Antitoxin. W. E. Bunney and W. L. Koerber, New Brunswick, N. J.—p. 449.
Preparation of Protein Free Scarlatinal Toxin. W. L. Koerber and W. E. Bunney, New Brunswick, N. J.—p. 459.
Dissociation of Aggregates Obtained on Adding Beef Heart Lipoid to Wassermann Positive Serums. O. Bier and E. Trapp, São Paulo, Brazil, South America.—p. 465.
Blood Platelets in Anaphylaxis. N. Kopeloff and Lenore M. Kopeloff, with technical assistance of Esther C. Posselt and B. Blattberg, New York.—p. 471.
Further Studies of Orientation of Reactive Sites in Thin Films of Streptococcus Antigens. L. A. Chambers, J. B. Bateman and H. E. Calkins, Philadelphia.—p. 483.
Repeated Vaccination of Man Against Virus of Equine Encephalomyelitis. Dorothy Beard, H. Finkelstein and J. W. Beard, Durham, N. C.—p. 497.

41:1-126 (May) 1941

Histamine Tolerance and Anaphylactic Death in Sensitized Guinea Pigs. Elizabeth Smith Karady, Grand Forks, N. D.—p. 1.
Immunologic Studies of Pollinosis: II. Passive Sensitization of Man Through Transfusion. Mary Hewitt Loveless, New York.—p. 15.
Studies of Hemolytic Streptococcus Antibodies in Control Groups, Rheumatic Fever and Rheumatoid Arthritis: I. Incidence of Antistreptolysin O, Antifibrinolysin and Hemolytic Streptococcus Precipitating Antibodies in Serum of Urban Control Groups. J. R. Mote and T. D. Jones, Boston.—p. 35.
Id.: II. Frequency of Antistreptolysin O, Antifibrinolysin and Precipitating Antibody Responses in Scarlet Fever, Hemolytic Streptococcus Infections and Rheumatic Fever. J. R. Mote and T. D. Jones, Boston.—p. 61.
Id.: III. Magnitude of Antistreptolysin O, Antifibrinolysin and Precipitating Antibody Responses; Persistence of Antibodies and Variations in Antistreptolysin O Curves in Scarlet Fever, Hemolytic Streptococcus Infections and Rheumatic Fever. J. R. Mote and T. D. Jones, Boston.—p. 87.
Potency of Staphylococcus Toxoid. L. N. Farrell, Toronto, Canada.—p. 119.

Journal of Lab. and Clinical Medicine, St. Louis

26:1239-1402 (May) 1941

Influence of Coronary Sclerosis, Chronic Congestive Heart Failure and Myocardial Fibrosis on Cardiac Hypertrophy. M. E. Maun, Detroit.—p. 1239.
Dissecting Aneurysm of Aorta: Summary of Clinical Syndrome and Pathology Together with Report of Case Showing Unusual Pathologic Features. F. W. Niehaus and W. D. Wright, Omaha.—p. 1248.
Sulfapyridine Overdosage—Antidotal Action of Hypnotics in Animals: Note on Sulfathiazole. R. K. Richards, North Chicago, Ill.—p. 1256.
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Further Observations on Thrombocytopen. F. Otenasek and F. C. Lee, Baltimore.—p. 1266.
Effect of Gold Sodium Thiomalate Administration on Bacteriostatic Properties of Serum in Patients with Rheumatoid Arthritis. E. F. Hartung and Joyce Cotter, New York.—p. 1274.
Treatment of Pneumonia in Rats: Comparative Study of Therapeutic Efficiency of Sulfapyridine and Rabbit Serum, and Combinations of the Two, in Artificially Induced Type I Pneumococcus Infection of Albino Rats. S. H. Spitz, E. H. Loughlin and R. H. Bennett, Brooklyn.—p. 1284.
Chromophobe Pituitary Adenoma with Simmonds' Disease: Case Report with Autopsy. T. J. Moran, Mayview, Pa., and G. H. Fetterman, Pittsburgh.—p. 1289.
Histopathologic Changes in Myelinated Nerve Fibers Observed by Polarized Light Method Following Artificially Induced Hyperpyrexia. H. M. Weaver, Detroit.—p. 1295.
Effect on Newborn of Vitamin K Administered to Mothers in Labor. J. W. Mull, A. H. Bill and Helen Skowronska, Cleveland.—p. 1305.
Blood Chemistry Observations in Leukemias. E. W. Pernokis and M. R. Freeland, Chicago.—p. 1310.
Determination of Blood Pyruvate in Vitamin B_1 Deficiency. P. K. Li and K. Kato, Chicago.—p. 1314.
Absorption of Nicotine from Cigaret Smoke. I. H. Pierce, Iowa City.—p. 1322.
Appearance of Blood Bromide After Oral Ingestion. F. B. Flinn, New York.—p. 1325.
Hippuric Acid Liver Function Test: Intravenous Method. E. C. Bartels, Boston.—p. 1330.
Hyperphosphatasemia of Paget's Disease. H. L. Williams and E. M. Watson, London, Ont., Canada.—p. 1333.

Journal of Pediatrics, St. Louis

18:567-708 (May) 1941

Effects of Asphyxia on Newborn Infant. S. H. Clifford, Boston.—p. 567.
Congenital Megacolon (Hirschsprung's Disease): Report of Case Treated with Acetylbetamethylcholine Bromide, with Apparent Cure. L. H. Barenberg, D. Greene and L. Greenspan, N. York.—p. 579.
Antistreptolysin Content of Serums of Normal Infants and Children. J. E. Gordon and J. H. Janney, New York.—p. 587.
Virus Diseases and the Eye in Childhood. G. M. Bruce, New York.—p. 592.
*Acute Appendicitis and Pseudoappendicitis in Rheumatic Children. A. G. Langmann, New York.—p. 599.
Urinary Excretion of Thiamine in Normal Children. R. A. Benson, C. M. Witzberger and L. B. Slobody, New York.—p. 617.
Favorable End Results in Icterus Gravis Neonatorum. I. P. Sobel, New York.—p. 621.
Skull Fractures in Children and Their Sequelae: Critical Analysis of 285 Cases. M. S. Fox and S. S. Blankstein, Milwaukee.—p. 629.
Osteodystrophia Disseminata: Report of Case. H. W. Thomas, T. N. Meredith and H. L. Wunderly, Pittsburgh.—p. 638.
Arteriosclerosis, Hypertension and Cerebral Atrophy in Infant. M. I. Rubin and M. Rapoport, Philadelphia.—p. 643.
Intraperitoneal Hemorrhage Caused by Strangulation and Rupture of Normal Ovary in 8 Year Old Girl. N. F. Hicken and L. P. Rasmussen, Salt Lake City.—p. 652.
Wound Diphtheria in Newborn Infant Following Circumcision: Report of Case. J. L. Rosenstein, Jersey City, N. J.—p. 657.
Period of Resistance in Early Childhood. E. Benjamin, Baltimore.—p. 659.

Acute Appendicitis and Pseudoappendicitis.—Langmann states that of 19 rheumatic children admitted to the hospital with the tentative diagnosis of acute appendicitis 10 were subjected to a laparotomy, and acute appendicitis was found in 4 (of minimal degree in 2). In a fifth patient a normal appendix (except for Oxyuris) was removed and no satisfactory explanation for the abdominal signs was found. The remaining 14 instances were considered to be rheumatic pseudoappendicitis. Of the 19 children, 5 gave a history of previous rheumatic episode and had muscle or joint pains at the time of or just before admission. The abdominal symptoms and signs were often not sufficient to differentiate between rheumatic pseudoappendicitis and acute appendicitis. The erythrocyte sedimentation rate should prove of distinct aid in differential diagnosis. Acute appendicitis developed in 2 other children, in 1 in the middle of and in the other toward the end of an acute attack of rheumatic fever. The abnormal appendixes showed no

pathologic changes that were characteristic of rheumatic disease. If after a short period of observation there is a reasonable doubt as to the existence of acute appendicitis, laparotomy should be done. If the condition proves to be rheumatic no harm is done by the operation, whereas procrastination in a case of acute appendicitis may result in death.

Kansas Medical Society Journal, Topeka

42:193-236 (May) 1941

Spinal Anesthesia in General Surgery: Analysis of 400 Cases. O. R. Clark, Topeka.—p. 195.
Relation of State Board of Health to the Private Medical Practitioner. F. P. Helm, Topeka.—p. 203.
Arthritis—the Great Responsibility and Opportunity. B. L. Wyatt, H. E. Thompson and J. D. Francis, Tucson, Ariz.—p. 207.
Noneffectiveness of Metrazol Therapy in Treatment of Schizophrenia (Dementia Praecox). G. W. Robinson Jr., Kansas City, Mo.—p. 210.
Lymphosarcoma Involving Epidural Space. R. L. Drake, Wichita. —p. 212.

Laryngoscope, St. Louis

51:399-478 (May) 1941

Progressive Deafness, Otosclerosis and Closely Related Subjects: Abstract of Available Literature Published During Year 1940. J. A. Babbitt and L. E. Silcox, Philadelphia. —p. 399.
Localized Nonsuppurative Encephalitis of Otorhinologic Origin. M. Atkinson, New York.—p. 434.
Nasopharyngeal Tumors: Pathologic Diagnosis of Nasopharyngeal Tumors. A. P. Stout, New York.—p. 446.
Id: Otolaryngologic Aspect. J. W. Babcock, New York.—p. 451.
Id: From Neurologic Viewpoint. S. Brock, New York.—p. 455.
Id: Roentgenologic Aspects. C. G. Dyke, New York.—p. 458.
Id: Roentgenography of Malignant Nasopharyngeal Tumors; Preliminary Report. H. H. Kasabach, New York.—p. 459.
Acute Osteomyelitis of Superior Maxilla in Children: Case Report. H. D. Harlowe, Virginia, Minn.—p. 464.

Maine Medical Association Journal, Portland

32:103-128 (May) 1941

What Is Wrong with the Teaching of Materia Medica in Medical Schools? A. P. Leighton, Portland.—p. 103.
Acute Intestinal Obstructions: Empyema. J. Homans, Boston.—p. 107.

Medical Annals of District of Columbia, Washington

10:121-162 (April) 1941

Health and National Defense. N. B. Van Etten, New York.—p. 121.
Digitalis: Its Action and Usage. H. Gold, New York.—p. 127.
Operative Risks in Cardiac Patients. W. S. Love Jr., Baltimore.—p. 134.
Adie's Syndrome in Twins: Preliminary Report. W. H. Hough, Washington, D. C.—p. 137.

10:163-204 (May) 1941

Electrically Induced Convulsions in Treatment of Functional Mental Disease. D. J. Impastato and R. Almansi, New York.—p. 163.
Symptomatic Relief of Spastic Disabilities with Beta-Erythroidine: Preliminary Report. J. M. Williams, Washington.—p. 171.
Differential Diagnosis of Congenital and Rheumatic Heart Disease in Children. E. F. Bland, Boston.—p. 173.
Sea Nettle. H. G. Hadley, Washington.—p. 178.
Rocky Mountain Spotted Fever: Report of Case Developed Post Partum. V. J. Dardinski, Washington.—p. 181.

Minnesota Medicine, St. Paul

24:293-420 (May) 1941

Blood Tests to Prove Nonparentage. Report of Special Committee.—p. 315.
Serology of Syphilis and Its Evaluation. F. Rytz, Minneapolis.—p. 321.
Marie's Hereditary Cerebellar Ataxia (Olivopontocerebellar Atrophy). R. C. Gray and C. P. Oliver, Minneapolis.—p. 327.
Use of Paredrinol to Correct Fall in Blood Pressure During Spinal Anesthesia. D. P. Anderson Jr., Austin.—p. 335.

North Carolina Medical Journal, Winston-Salem

2:217-272 (May) 1941

The Medical Citizen of 1941. N. B. Van Etten, New York.—p. 217.
Personal Element in Medicine. T. D. Kitchin, Wake Forest.—p. 222.
Modern Treatment of Pneumonia. H. F. Flippin, Philadelphia.—p. 223.
Serial Pyelograms in Nephroptosis. G. A. Hawes, Charlotte.—p. 228.
Clinical Status of Vitamins. R. L. Fike, Wilson.—p. 231.
Vitamin K in Prevention and Treatment of Hemorrhagic Disease of the Newly Born Infant. R. B. Lawson, Dorothy B. Wyvell and W. S. Branning, Durham.—p. 234.
Neurologic, Orthopedic and Therapeutic Aspects of Cerebral Palsy. Grizzelle M. Norfleet, R. B. Raney and L. D. Baker, Durham.—p. 236.
Plea for Early Diagnosis of Cancer. T. V. Goode, Statesville.—p. 242.
Recent Advances in Prevention and Treatment of Diseases of Chest. S. M. Bittinger, Black Mountain.—p. 245.
Surgical Treatment of Benign Rectal Stricture (Lymphogranuloma Venereum). G. T. Wood, High Point.—p. 247.

Public Health Reports, Washington, D. C.

56:1039-1072 (May 16) 1941

Tannic Acid Treatment of Poison Ivy (Rhus Spp.). L. Schwartz and L. H. Warren.—p. 1039.
Studies on Immunizing Substances in Pneumococci: XII. Comparison of Effect of Whole Cell Vaccine and of Polysaccharide Antigen in Human Beings. L. D. Felton, C. F. Jordan, E. N. Hesbacher and E. K. Vaubel.—p. 1041.
Observations on Household Anophelism in Selected Group of Mosquito Proofed and Non-Mosquito Proofed Homes. R. Hewitt and E. Kotcher.—p. 1055.
Effectiveness of Deratization of Ships by Trapping. G. C. Sherrard and C. J. Vion.—p. 1061.

56:1073-1130 (May 23) 1941

Outbreak of Psittacosis at National Zoological Park, Washington, D. C. T. H. Tomlinson Jr.—p. 1073.
*Quantitative Studies of Tuberculin Reaction: I. Titration of Tuberculin Sensitivity and Its Relation to Tuberculous Infection. M. L. Furcolow, Barbara Hewell, W. E. Nelson and C. E. Palmer.—p.1082.

56:1131-1190 (May 30) 1941

Responsibility of the Nursing Profession in Industrial Hygiene. J. J. Bloomfield.—p. 1131.
Incidence of Cancer in New Orleans, La., 1937. A. J. McDowell. —p. 1141.

Tuberculin Reaction.—Furcolow and his associates tested members of several different population groups with gradually increasing concentrations of tuberculin. Thus all persons of a particular group were tested initially with an exceedingly dilute concentration of tuberculin, and those who did not react were retested four days later with a more concentrated solution. This procedure was continued step by step until all persons reacted or until the largest dose (ranging from $\frac{1}{100}$ billionth of a milligram to 1 mg. in 0.1 cc. of physiologic solution of sodium chloride) was used. The tests were performed by the intracutaneous method. Institutional groups were studied, as any general population group presents obvious difficulties when repeated testing is necessary. The nontuberculous groups consisted of 553 white children from 6 to 19 years of age residing in an orphanage in Ohio, 200 adults in the institution and 116 infants and young children, residents of two foundling homes, ranging in age from birth to 6 years. No roentgen evidence of pulmonary tuberculosis was found in the children of either home. Roentgen studies were not made of the adults of these institutions. The tuberculous and contact groups consisted of 60 children who were patients in a hospital for active tuberculosis, 46 children in a preventorium for inactive cases and children who had had intimate contact with tuberculosis, 101 children in an antituberculosis camp, about 60 per cent of whom had a history of probable contact with active tuberculosis, and the entire adult population (468 white and Negro patients) of a hospital for the treatment of active tuberculosis. The children ranged in age from birth to 14 years and the adults from 15 to 70 years. The clinical diagnoses of the adults varied from minimal to far advanced tuberculosis. Less than 10 per cent of this group were reported to have had a previous tuberculin test. No proved active tuberculosis was found among either the adults or the children of the orphanage. Another group of 499 adults from 15 to 60 years of age, inmates of an institution for the insane, was tested. More than 10 per cent of this group had active tuberculosis and therefore the remaining patients were considered as contacts. The results of the quantitative testing of the 553 children in the orphanage show approximately 20 per cent positive reactions at the level of the usual first testing dose of purified protein derivative, 50 per cent at the level of the second testing dose and 96 per cent at the largest dose, 1 mg. of tuberculin. Family histories of 309 children showed that 61 had a history of contact, and these children were much more sensitive to tuberculin than were those of the entire orphanage group. Conversely, the children who had no history of contact were less sensitive. The positive response to the seventh test dose (one one-hundred thousandth mg. in 0.1 cc. of tuberculin) was 6.5 per cent among the children without a history of contact in contrast to 77 per cent of those with such a history. As to the infants and children of the two foundling homes, although there were no reactors to the smaller doses of tuberculin, most of the infants, including those less than 6 months of age, reacted to the larger doses. Sensitivity to tuberculin increased with age; the curve for the children from 4 to 6 years of age approached the curve for children

from 6 to 19 years of age who had no known history of contact. The children (in the tuberculosis and contact groups) in the antituberculosis camp were more sensitive than those of the orphanage group. The children of the preventorium had a higher percentage of reactors to the lower test doses. This sensitivity to the lower doses was even more marked among the children with active tuberculosis, approximately 95 per cent of whom reacted at a level of dosage equivalent to the usual first testing dose of purified protein derivative and all of them reacted at a dosage level five times as concentrated. In contrast, only 20 per cent of the orphanage group and 42 per cent of the children in the antituberculosis camp reacted to this dose. The curves for adults in the tuberculosis and contact groups were similar to the curves for the tuberculous children. This is further evidence that reactions to small doses of tuberculin, or cutaneous hypersensitivity, occur with great regularity in persons with active tuberculosis. The adults were slightly less sensitive than the children; for example, 84 per cent of the adults had reactions to the seventh dose and 99.6 per cent to the eighth as compared to 93 per cent and 100 per cent, respectively, of the children. The 499 patients in the hospital for the insane were not as sensitive to tuberculin as were active cases of tuberculosis but were far more sensitive than the children in the orphanage, none of whom had active tuberculosis.

Radiology, Syracuse, N. Y.

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Wartime Military Roentgenology. A. A. de Lorimier, Washington, D. C.—p. 391.
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Reminiscences of Roentgenology During the Last War, 1917-1919: Review of 17,000 Examinations and X-Ray Equipment Employed. E. C. Ernst, St. Louis.—p. 421.
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Carcinoma of Jejunum. M. J. Geyman, Santa Barbara, Calif.—p. 468.
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*Roentgen Irradiation of Pelvis in Carcinoma of Cervix Uteri: Present Method. R. S. Stone and J. M. Robinson, San Francisco.—p. 521.
Irradiation in Cancer of Cervix Uteri. S. T. Cantril, F. Buschke and H. M. Parker, Seattle.—p. 534.
Technic of Irradiation of Cancer of Uterine Cervix, Combining Radium and Supervoltage Roentgen Rays. E. Liljencrantz and R. R. Newell, San Francisco.—p. 543.
Statistical and Roentgen Analysis of 200 Cases of Bone and Joint Tuberculosis. L. Nathanson and W. Cohen, Brooklyn.—p. 550.
Roentgenographic Study of Pleural Effusion. F. J. Rigos, Oak Terrace, Minn.—p. 568.
Megaesophagus (Cardiospasm): Report of Case with Subdiaphragmatic Herniation of Esophagus. R. P. Ball and A. C. Crump, New York.—p. 575.
Low Voltage Contact Roentgen Therapy (Chaoul Therapy). L. S. Goin, J. W. Crossan and J. Jellen, Los Angeles.—p. 583.
Irradiation of Brain Tumors at Bellevue Hospital 1924-1939. I. I. Kaplan, New York.—p. 588.
Pancreatic Tumors: Roentgenologic Study. S. Brown, J. E. McCarthy and A. Fine, Cincinnati.—p. 596.
Surgical Aspects of Ruptured Intervertebral Disk, with Particular Reference to Thorotrast Myelography. A. T. Bunts, Cleveland.—p. 604.
Investigations into Significance of Sedimentation Reaction as Regards Prognosis of Irradiation of Cancer Patients. P. Jacoby and J. Spotoft, Odense, Denmark.—p. 617.

Irradiation of Carcinoma of Cervix.—Stone and Robinson describe their method of treating carcinoma of the uterine cervix and the reasons for the adoption of the new technic. If the lesion is small and well localized, the first treatment with radium is given immediately after the biopsy, to be followed by the complete course. If the growth is in stage I or stage II (Schmitz) and the patient is a good operative risk, a Wertheim operation is performed. Otherwise a course of roentgen therapy follows the course of radium. If the growth is bulky and extensive, the course of roentgen treatments is given first and then followed in from two to six weeks by radium therapy. The purpose of roentgen therapy first is to decrease the size of the lesion so that radium can be applied more effectively. Radium is the principal medium. The beam of roentgen rays is not aimed at the cervix but at all the probable regions of extension and metastasis. The lymph nodes of from 30 to 50 per cent of patients with "operable" lesions are involved. From 10 to 20 per cent of patients with small local lesions, without parametrial involvement, have metastases in the lymph nodes. Therefore patients with large and small lesions should have roentgen irradiation, unless a radical Wertheim operation is to be performed. About 90 per cent of lymphatic involvement occurs in the primary nodes, which consequently must be included in the regions irradiated. These primary nodes are (1) the hypogastric beside the hypogastric artery just below the bifurcation of the common iliac artery, (2) the obturator on the obturator nerve near the femoral ring, (3) the iliac nodes along the external iliac artery at and below the bifurcation of the common iliac artery, (4) the sacral nodes on the anterior surface of the sarcum and (5) the parametrial nodes, including the ureteral node. Direct extension of the cancer into the parametrium and vagina may occur, and irradiation must include these structures. Accurate aiming of the beam is as important as selecting the cutaneous fields and the amount of radiation to be given. The position of each treatment must be carefully checked by the physician. Technicians should not be given this responsibility. The amount of radiation given should be all that the normal tissues can tolerate. Six fields produce the best internal distribution of the radiation. Five year survivals of patients treated by a combination of radium and roentgen rays from a 200 kilovolt unit indicate that the growth of the cancer growth is retarded or destroyed.

South Carolina Medical Assn. Journal, Greenville

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Address to House of Delegates. F. H. Lahey, Boston.—p. 109.
Thyroidectomy: Review of Experiences and Complications in Doing 125 Thyroidectomies. L. H. McCalla, Greenville.—p. 114.

Southern Medical Journal, Birmingham, Ala.

34:453-558 (May) 1941. **Partial Index**

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Duodenal Obstruction: Unusual Types. R. W. Kelley, St. Louis.—p. 471.
*Radical Operation for Severe Varicose Veins and Varicose Ulcer. H. Mahorner, New Orleans.—p. 478.
Chorionepithelioma: Diagnostic and Therapeutic Difficulties: Critical Analysis of Fifteen Suspected Cases. E. C. Smith and D. W. Goldman, New Orleans.—p. 486.
Changes Occurring in Urinary Tract in Pregnancy and Their Sequelae. J. A. Bowen and J. R. Stites, Louisville, Ky.—p. 494.
Comparison of Sulfapyridine and Sulfathiazole in Treatment of Pneumonia. J. M. Kinsman and J. W. Moore, Louisville, Ky.—p. 497.
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Abuses of Nasal Medication. B. J. McMahon, St. Louis.—p. 524.
Gastrointestinal Allergy: Proctoscopic Observation. J. W. Thomas and R. J. F. Renshaw, Cleveland.—p. 528.
Early Diagnosis of Carcinoma of Colon. P. R. Imes, Louisville, Ky.—p. 538.
Role of Hamstrings in Production of Postural Changes: Possible Connection Between Contracted Hamstrings and Low Back Conditions and So-Called Epiphysitis of Spine. T. Wheeldon, Richmond, Va.—p. 540.
Pollution of the Ohio River. H. R. Leavell, Louisville, Ky.—p. 547.

Chronic Ulcerative Colitis.—Rankin and Johnston point out that, since ulcerative colitis may be initiated or an exacerbation may follow infection of the upper part of the respiratory tract or any disease, trauma or local irritation, the presence of the offending organism as part of the intestinal flora, dangerous only in the face of some physiologic abnormality, is suggested. The disease may superimpose itself on the damaging effects of a dysentery or on the result of some injurious irritant or trauma.

Usually (in 95 per cent) the disease begins in the rectum and progresses upward across the transverse colon, often reaching the cecum. Segmental involvement is observed in about 5 per cent of cases. If proliferation and repair fail to keep pace with tissue necrosis and destruction, perforation resulting in generalized peritonitis or localized abscess formation follows. The diagnosis of ulcerative colitis is rarely difficult except in the earliest phase of the disease before the general grayish yellow appearance of the patient, progressive increase in the number of daily stools and digital, proctoscopic and roentgen signs have become established. Treatment is primarily medical, but about 15 per cent of patients present complications for which immediate surgical intervention is indicated. The first group consists of perforation, hemorrhage, abscess or fistula formation, acute fulminating disease and acute intestinal obstruction, and the second group comprises advanced visceral degeneration and infection, polyposis and malignant degeneration. Chemotherapy and continuous duodenal drainage have altered the original conception of treating perforation so that now the method advised by Ochsner in the treatment of appendical peritonitis seems often advisable. The indirect surgical attack has no place in the treatment of hemorrhage. Abscess formation, whether abdominal or perirectal, should be drained surgically. Conservatism must be predominant. For the acute fulminating case surgical drainage, ileostomy, has been urged. Surgical decompression is the only means to relieve intestinal obstruction. Elective surgical intervention is reserved for those patients for whom sepsis, polyposis or malignant disease endanger life. The condition of patients with malignant disease and polyps indicating resection is usually better than that of those with visceral degeneration and sepsis. Rehabilitation is therefore less difficult and will require a shorter interval. Ileostomy is the most simple and satisfactory procedure for deflecting the fecal stream as a therapeutic measure or as an initial step in the radical removal of the large intestine. When further surgical intervention is considered, a sufficient length of time must be permitted for adequate rehabilitation. If colectomy is advised, the time element should depend entirely on the patient's surgical tolerance. Colostomy, exteriorization of that part of the involved colon, ileocolostomy and ileosigmoidostomy have no guaranty of retarding the disease and must be reserved for only a few carefully selected cases. Colectomy is a formidable procedure. The single right McBurney ileostomy with the inverted distal stump dropped into the abdomen will greatly simplify this procedure and minimize wound infection or peritonitis. For 20 patients multiple stage procedures have been used with 1 exception. Following operation this patient suffered a dehiscence of his wound and died in the second week from peritonitis. One other patient died from a pulmonary embolism following a graded colectomy. An adequate period of readjustment following ileostomy cannot be too strongly emphasized. The 19 patients underwent forty-three operations, and all of them recovered and have had a satisfactory convalescence.

Radical Operation for Varicose Veins and Ulcer.—There is no unanimity of opinion regarding the treatment of severe varicose veins and varicosities complicated by leg ulcers. Mahorner outlines a radical operative procedure for these cases which consists of excision of a lenticular area of subcutaneous tissue containing the varicosities and the deep fascia, exposing the muscles and thus tying all communicating veins in this area. When pigmentation or subcutaneous scarring is heavy or when the ulcer does not heal because of subcutaneous scarring, such areas are excised down to the muscle, and a split skin graft is used to replace it. In certain cases of severe varicose veins it is essential not only to ligate the saphenous and its tributaries high at the fossa ovalis but also to resect segments in the lower third of the thigh or upper third of the leg. The radical operation is indicated for the most severe type of varicose veins with ulcers due to multiple leaks from the deep to the superficial veins through communicating veins in the leg. The author emphasizes the point that the static pressure is the same in varicose as in normal veins but that the kinetic pressure or pressure in the actively moving extremity is much less in normal veins than in varicose veins. The Trendelenburg test and its doubly positive reaction may indicate whether the retrograde flow in varicose veins occurs through communicating veins and the main opening of the saphenous, but it does not localize the leaking communicating veins. It gives the information that the incompetent communicating veins are somewhere below the main opening of the saphenous, but the Mahorner-Ochsner test definitely localizes the level of the leaks in the communicating veins and it can thus be of great value in indicating the operative procedure essential for the disturbed physiologic function in severe varicose veins and ulcers.

Southwestern Medicine, El Paso, Texas

25:67-102 (March) 1941

Role of the General Practitioner in the Cure of Cancer. F. S. Wetherell, Syracuse, N. Y.—p. 67.
Treatment of Ununited Fractures of Neck of Femur. W. C. Campbell and H. Smith, Memphis, Tenn.—p. 70.
Partial Gastrectomy in Certain Cases of Duodenal Cancer. V. C. Hunt, Los Angeles.—p. 73.
Some Indications and Contraindications in Commonly Used Anesthetic Agents. T. H. Seldon and J. S. Lundy, Rochester, Minn.—p. 77.
Injuries to Clavicle: Report of Two Cases. D. Cameron and F. C. Goodwin, El Paso, Texas.—p. 79.
Abdominal Actinomycosis: Case Report. T. W. Woodman, Phoenix, Ariz.—p. 81.

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Unity in Medicine. W. P. Holbrook, Tucson, Ariz.—p. 103.
Ectopic Pregnancy. H. J. Goubeaud, H. Klein and A. Katz, Brooklyn.—p. 105.
Chagas' Disease (Does It Exist in Men in Arizona?). S. F. Wood, Los Angeles.—p. 112.
Otitis Media in Childhood. W. E. Vandevere and M. P. Spearman, El Paso, Texas.—p. 114.
Normal Blood Counts of Mexican Children of Tucson, Ariz. E. L. Breazeale and R. A. Greene, Tucson, Ariz.—p. 116.
Regional Ileitis: Case Report. J. L. Green and H. H. Varner, El Paso, Texas.—p. 117.

Surgery, Gynecology and Obstetrics, Chicago

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Observations on Pathology of Experimental Traumatic Shock. J. E. Dunphy, J. G. Gibson 2d, Boston, and J. L. Keeley, New Orleans.—p. 823.
McClure-Aldrich Test in Water Balance. D. S. MacIntyre, S. Pedersen and W. G. Maddock, Ann Arbor, Mich.—p. 834.
Venous Circulation in Lower Extremities During Pregnancy. J. R. Veal and H. H. Hussey, Washington, D. C.—p. 841.
Persistence of Function of Skin Grafts Through Long Periods of Growth. J. B. Brown and F. McDowell, St. Louis.—p. 848.
Effect of Partial Obstruction of Common Bile Duct. N. W. Thiessen and R. F. Hanzal, Cleveland.—p. 854.
*Efficacy of Phenol and Tetanus Antitoxin in Treatment of Experimental Tetanus. W. D. Thompson Jr. and L. Friedman, Philadelphia.—p. 860.
*Eclampsia and Posteclamptic Hypertension: Follow-Up Study with Analysis of Factors Affecting Remote Prognosis. L. C. Chesley and W. H. Somers, Jersey City, N. J.—p. 872.
*Study of Clinical Manifestations and Results of Treatment of Twenty-Two Patients with Raynaud's Symptoms. C. A. Johnson, Chicago.—p. 889.
*Mucinous Carcinoma of Breast. O. Saphir, Chicago.—p. 908.
Accuracy of Roentgen Estimates of Pelvic and Fetal Diameters. A. L. Dippel and E. Delfs, Baltimore.—p. 915.
Constrictive Occlusion of Superior Vena Cava: Report of Three Cases in Which Patients Were Treated Surgically. H. K. Gray and I. C. Skinner, Rochester, Minn.—p. 923.
Suspension Laryngoscopy in Treatment of Malignant Disease of Hypopharynx and Larynx. G. B. New and H. E. Dorton, Rochester, Minn.—p. 930.
Demonstration of Mycobacterium Tuberculosis in Anorectal Abscess. J. E. Pottenger and F. M. Pottenger Jr., Monrovia, Calif.—p. 936.

Phenol and Tetanus Antitoxin in Experimental Tetanus.—Thompson and Friedman carried out controlled experiments on dogs in an attempt to determine the value of phenol alone or combined with antitoxin. The method advocated by Suvansa was investigated and the authors assumed that his maximal dose of 40 cc. was for treating a young, well developed man of 150 pounds with a severe case of tetanus From this they deduced the intrathecal dose of 0.57 cc. per kilogram of body weight of a 1:400 phenol solution in physiologic solution of sodium chloride. They desired to use a dose of tetanus toxin that would kill the dog regardless of the amount

of tetanus antitoxin administered. Abel and Chalian found that if 100 dog lethal doses of tetanus toxin was injected intravenously and that if six hours elapsed, no amount of antitoxin could save the animal. This amount was used, since the authors felt that by so doing they could tell whether phenol alone or with tetanus antitoxin was of any benefit in extreme tetanus. Experiments show that the intrathecal administration of phenol to dogs given intravenously 100 lethal doses of a tetanus toxin known to kill healthy dogs within twenty-five to twenty-six hours will not prevent the animal's death. Their death seemed to be hastened by the additional damage to the central nervous system or by the lowered resistance to distemper which phenol apparently produces. However, the administration of tetanus antitoxin in sufficient amounts saves dogs when given within six hours of a similar dose of toxin. The lethal dose for dogs of a 1 per cent solution of phenol was found to lie between 0.3 and 0.35 Gm. per kilogram of body weight when given intravenously. The damage to the kidneys and liver was directly proportional to the amount of phenol given. The 1 per cent solution of phenol given intravenously and simultaneously with 100 dog lethal doses of tetanus toxin through opposite veins did not alter the progress of the tetanus, and the bioassays did not reveal any detoxifying effect of the phenol. If the phenol in the dosage used was given simultaneously with 10 dog lethal doses of tetanus toxin through opposite veins, it still did not alter the progress of the tetanus and neither did the bioassays reveal any detoxifying effect of the phenol. The authors point out that the common preservatives used in tetanus antitoxin are definite irritants to the central nervous system and that tetanus antitoxin containing these preservatives should not be used intrathecally in the treatment of tetanus. Dogs given 100 dog lethal doses of tetanus toxin intravenously were saved when they were given at six hours from one hundred and eighty-two to two hundred times the neutralizing dose of tetanus antitoxin. Dogs given 100 dog lethal doses of tetanus toxin were saved when they were given at seven hours three hundred times the neutralizing dose of tetanus antitoxin, although signs of tetanus developed. Evidently in seven hours a portion of the toxin was so irreversibly fixed that it could not be neutralized by the antitoxin.

Eclampsia and Posteclamptic Hypertension.—Chesley and Somers present a follow-up study of 167 eclamptic women encountered among 42,476 deliveries at the Margaret Hague Maternity Hospital. Of these, 20 are known to be dead, 141 were reexamined in 1940, and an additional 4 had been followed for at least a year before they were lost track of. Only 2 patients have had no follow-up. There were 12 immediate maternal deaths. The maternal mortality among the 114 primiparas, who made up 68 per cent of the cases, was 4.4 per cent and among the 55 multiparas it was 12.7 per cent. The total loss of babies (abortions, stillbirths, neonatal deaths and undelivered babies of mothers dying of antepartum eclampsia) was 33.5 per cent. There were 8 sets of twins; 2 women were admitted twice, giving 177 babies. Of these 118 were discharged alive, 47 were stillborn and 12 were neonatal deaths. As the pregnancy progresses and the fetus becomes larger, the rate of survival increases. Much of the adverse effect of eclampsia on the baby seems to lie in premature delivery. Yet most of the deaths are not neonatal deaths; the majority, 79.6 per cent, of the babies lost are stillborn. Hence it seems that, the older the fetus, the more resistant it is to whatever intrauterine factor is so often lethal. Of 144 babies born after the thirty-fifth week of gestation 28, or 19.4 per cent, were stillborn. Of the 116 born alive 4, or 3.45 per cent, died. Assuming the death rate to remain constant, delivery at the thirty-fifth week would have saved 23 infants if the eclampsia could have been foreseen. In an analysis of the results of carrying a toxic patient to secure an older and heavier baby with consequent lower neonatal mortality, it appears that when delivery is delayed more than three days after the first convulsion 57.2 per cent of the fetuses die in utero; delivery within three days shows a stillbirth rate of 25.8 per cent. In postpartum eclampsia only 2.2 per cent of the fetuses are stillborn. The duration of toxemia, regardless of the time of convulsions, has a definite effect on fetal survival, the death rate increasing as the toxemia is prolonged. Of 29 patients carried for more than four weeks with toxemia, 62 per cent failed to have living babies. The degree of prematurity also played a part. The fetal mortality increases with the severity of the toxemia. The mortality rate rises as the blood pressure or proteinuria increases. The relation between the number of convulsions and fetal death is nearly linear. There were 8 remote deaths; 1 was caused by a septic abortion eighteen months after the eclamptic pregnancy, 2 by pulmonary tuberculosis at respectively four and one-half months and three and one-half years post partum, and 5 died of cardiovascular causes from seven months to three and a half years after the eclamptic delivery. None of these 8 remote deaths occurred in private patients. At follow-up (from one to eight years) the incidence of hypertension among the 147 surviving women was 17.5 per cent. This is significantly greater than that among the general female population, after correction is made for age distributions. The incidence of proteinuria of significant degree was 2.6 per cent at follow-up. Renal function, as measured by the urea clearance and urinary specific gravity, was in the normal range in at least 97 per cent of the patients at follow-up. The majority of the living hypertensive women had significant eyeground changes, half had cardiac enlargement and 8 had signs and symptoms of cardiac insufficiency. Analysis of factors contributing to the persistence of hypertension shows that in general high blood pressure is more likely to be found at follow-up if there are antecedent renal or vascular disease, high blood pressure in pregnancy, advanced age of the patient, many previous children, and the eclampsia and obesity long and severe. Not one of these factors is so decisive in conditioning remote hypertension as is recurring toxemia subsequent to the eclampsia. The recurrent rate of toxemia in pregnancies after eclampsia was found to be 47 per cent. The foregoing factors which favor the persistence of hypertension favor in even greater degree the recurrence of toxemia. Advising a posteclamptic patient against future pregnancies would seem to be justified by the recurrent rate of toxemia, with a consequent eightfold potential increase in permanent hypertension if the pregnancy is toxic.

Raynaud's Symptoms.—Johnson presents the histories, physical and laboratory observations, treatment and course of 22 patients with Raynaud's symptoms. All the patients presented Raynaud's symptoms in the fingers, and 11 had similar symptoms in the toes, but in no case did the symptoms occur in the toes without the fingers being affected. In only 3 instances were emotional upsets a frequent cause, and in these surgery on the sympathetic failed to produce any improvement as judged by recurrence and frequency and severity of attacks. Associated diseases were comparatively common: 2 patients had syphilis, 13 a mild secondary anemia, 2 a severe anemia, 3 stiffness of the finger joints, scleroderma, ulcers, loss of tissue, and loss of fingernails and 2 had sclerodactylia. Treatment consists of relief of mental anxiety, improvement of anemia, treatment of any specific disease and surgical treatment by operations on the sympathetic nervous system. The main reasons for the apparent lack of progress in knowledge of the symptom complex of Raynaud's disease are (1) differences of opinion as to whether Raynaud's disease exists as a clinical entity, (2) failure to understand the nature of the vascular changes and (3) differences of opinion regarding treatment. Certain data from the present study throw light on the nature of the vascular changes during attacks and further bear out the opinion that the changes observed in the extremities are merely symptoms of some more fundamental disease. The study does not completely bear out the generally accepted view that blanching of fingers or toes during an attack is caused by active peripheral vascular constriction. The blanching may be caused in part by a vasodilatation in the palmar arch and a passive collapse of the vessels in the fingers from an inadequate amount of blood and blood pressure to keep them open; that is, the blood may be shunted into the palmar arch without going through the fingers. The common association with other diseases presents two questions which can be only partially answered: 1. The treatment of the mild or severe anemia resulted in improvement in all. The degree of improvement varied from

slight to almost complete relief from attacks. The effects of antisyphilitic treatment could not be observed in 1 patient because he did not remain under observation; in the other, who also had scleroderma and sclerodactylia, complete relief from the Raynaud symptoms and great improvement in the scleroderma followed antisyphilitic treatment. 2. The organic vascular disease varied from mild organic peripheral changes to severe cardiovascular disease with decompensation, and the results indicate that it and the Raynaud symptoms have a common etiology. The treatment of Raynaud's syndrome varies with the individual circumstances of each patient. In the author's 22 patients surgery of the sympathetic nervous system was a therapeutic failure but medical management gave considerable relief to a number of patients. In from twelve to thirty-five days after surgical intervention on the sympathetic nervous system the circulation returns to the preoperative level, but the cutaneous temperature remains elevated and the absence of sweating persists. This occurs in the apparent absence of the sympathetic vasoconstrictor tone. Following the so-called preganglionic sympathectomy to the upper extremity as done by White the circulatory and thermal effects were transitory; it is doubtful that they lasted longer than the traumatic effects of the operation. Vasodilatation in the fingers could be produced following recovery from surgery by local heat or median nerve block indicating the presence of nerves with vasomotor function. The importance of recognizing Raynaud's symptoms as part of some other disease cannot be overlooked. It would seem logical to direct attention to the recognition and treatment of Raynaud's symptoms as part of some other disease rather than to Raynaud's disease alone, which must be extremely rare if it exists at all.

Mucinous Carcinoma of Breast.—Saphir states that mucinous carcinoma of the breast is not a single entity but that it presents at least four definite types of tumor: 1. The true mucinous carcinoma, which consists of duct or cystic structures filled with mucinous material in which groups of, or isolated, tumor cells may still be recognizable. There are no other tumor structures present. This is apparently a rare tumor and is relatively benign. The original conception of the benignity of mucinous tumors is to be traced to this type. 2. Duct carcinoma with mucinous features, which is the most common type. Areas similar to those seen in true mucinous carcinoma are intermingled with duct carcinomatous structures. Sometimes the latter portions are seen only after sections of the whole breast have been examined. The tumors are just as malignant as simple duct carcinomas. 3. The signet ring cell mucinous carcinoma, characterized microscopically by well preserved mucin secreting cells with basophilic or clear cytoplasm and crescent shaped, compressed nuclei situated at the base of the cells. The signet ring tumor cells remain intact. Soon they become isolated from the ducts and acini, invade the stroma and may produce the most widespread metastases, particularly in the ovaries. Though duct carcinomatous structures may also be present in this variety, the metastases consist mostly of signet ring shaped cancer cells. This tumor is regarded as highly malignant. Two patients died from widespread metastases soon after the detection of the primary tumor. Yet 1 patient is alive four years after operation. 4. Intracystic papilloma with mucinous features. This is a relatively rare, nonmalignant tumor. Only 1 such tumor was observed. Grossly it consisted of a cyst measuring about 4 cm. in greatest dimension, which was filled with a hemorrhagic and mucinous material in which small, yellowish pieces of soft, granular tissue were loosely intermingled. The inner wall of the cyst presented a rather soft and friable, velvety, broadly attached tumor composed of many well circumscribed, small or minute excrescences covered and separated from one another by mucinous material. Microscopically the tumor consisted of round, oval and, more often, spindle shaped epithelial cells resembling transitional cells of the urinary tract and an insignificant, thin, connective tissue stalk. These cells were covered by a mucinous material. Because of the spindle shaped cells the tumor could be classified as a transitional type of intracystic papilloma.

West Virginia Medical Journal, Charleston

37:241-288 (June) 1941

The Physician in the Changing Order. R. K. Buford, Charleston.—p. 241.
*Meningitis Due to Salmonella Suipestifer: Case Report. G. M. Lyon and T. G. Folsom, Huntington.—p. 249.
Diagnosis and Treatment of Hyperthyroidism. G. Crile Jr., Cleveland.—p. 255.
Accessory Factors Concerned in Diagnosis of Heart Disease. C. S. Duncan, Huntington.—p. 261.
Tic Douloureux: Two Cases. W. S. Robertson, Charleston.—p. 264.
Renal Complications Following Sulfapyridine and Sulfathiazole Therapy in Pneumonia. L. W. Hewit, Bluefield.—p. 265.

Meningitis Due to Salmonella Suipestifer.—Lyon and Folsom report a case of meningitis due to an unusual small motile gram-negative rod treated with sulfanilamide. Two weeks before admission the patient, a boy 2½ years of age, became suddenly ill with fever, vomiting, malaise and diarrhea. From the parents it was learned that there had been a considerable amount of raw pork in their kitchen for two or three weeks preceding the apparent onset of his illness. There is much reason to believe that the meningitis and bacilluria were caused by one of the Salmonella group, probably Salmonella suipestifer (the bacillus of hog cholera) rather than Salmonella schottmülleri (bacillus parathyphoid B). Salmonella suipestifer infections in man occur infrequently or else they are not recognized. The young seem to be more frequently affected, and while in them the infections are believed to be mild the most severe form is also encountered in the very young. With all the Salmonella contaminated raw pork sold and taken into homes there have been relatively few illnesses traceable to Salmonella suipestifer. This can best be explained on the basis of (1) its low pathogenicity for man and (2) the failure to suspect the real causal agent. More careful bacteriologic study of the gram-negative bacilli encountered clinically would probably show a larger incidence of these infections than is generally recognized. Just what role sulfanilamide played in the management and recovery of their patient is not clear. It is possible that the patient may have recovered spontaneously. However, it is the authors' impression that the drug was directly responsible for the recovery. They also believe that relatively high blood and cerebrospinal fluid levels are required, as their patient did better clinically on high levels (from 18 to 24 mg. per hundred cubic centimeters) than on levels from 12 to 18 mg. per hundred cubic centimeters. He also did better on combined oral and intrathecal administration than on oral therapy alone. At no time was there any significant evidence of toxicity other than a grayish discoloration of the skin. The authors know of no similar instance in which a meningitis and a bacilluria caused by a motile gram-negative bacillus was treated with sulfanilamide. Cultures were taken directly from the puncture needle into nutrient broth. After from forty-eight to seventy-two hours a gram-negative bacillus possessing motility was observed. The bacilli were not agglutinated by serums which agglutinated the typhoid bacillus (Eberthella typhi), the Flexner dysentery bacillus (Eberthella paradysenteriae) the bacillus of paratyphoid A (Salmonella paratyphi) or the bacillus of paratyphoid B (Salmonella schottmülleri Seiffert). In spite of the fact that the small gram-negative bacillus did not regularly satisfy all the cultural and fermentation characteristics of Salmonella suipestifer, it seemed, from purely bacteriologic grounds alone, that the organism belonged more nearly to the Salmonella group than to any other. The finding of this motile gram-negative bacillus in cerebrospinal fluid and in the urine is of particular interest. Broth cultures from the blood gave no certain evidence of a bacillemia, although they were not taken until relatively late in the clinical course and after chemotherapy was instituted.

Wisconsin Medical Journal, Madison

40:361-460 (May) 1941

Industrial Dermatitis. H. R. Foerster, Milwaukee.—p. 377.
Impetigo Contagiosa: Streptococcic and Staphylococcic Varieties and Their Management. S. Epstein, Marshfield.—p. 383.
Treatment of Burns. A. A. Schaefer, Milwaukee.—p. 391.
Problem of Squint in Young Children. E. E. Neff, Madison.—p. 394.
Prophylactic Use of "Cold Capsules." A. A. Holbrook, Milwaukee.—p. 396.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

53:127-170 (May) 1941

Dermatitis Caused by Insecticidal Pyrethrum Flowers (Chrysanthemum Cinerariifolium). J. T. Martin and K. H. C. Hester.—p. 127.
"Prurigo Annularis." J. H. T. Davies.—p. 143.

British Journal of Ophthalmology, London

25:189-240 (May) 1941

Measurement of Heterophoria. N. Cridland.—p. 189.
Surgical Cure of Unusual Detachment of Retina. E. C. Zorab.—p. 229.
New Dark Adaptation Tester. S. Yudkin.—p. 231.

British Medical Journal, London

1:545-578 (April 12) 1941

Effort Syndrome in Soldiers. J. Parkinson.—p. 545.
Clinical Investigation of Shock. A. C. Kanaar.—p. 549.
Sarcoidosis: Some Speculations as to Stages of Infection in General. G. E. Lewis.—p. 552.
Outbreak of Acute Gastroenteritis Among Troops in Large Training Area: Preliminary Report. A. H. D. Smith and D. J. Davies.—p. 554.
Repair of Lacerated Eyes. R. L. Rea.—p. 555.

1:579-616 (April 19) 1941

*Prothrombin Deficiency in Disease of Liver and Bile Passages and Its Treatment with Synthetic Vitamin K. J. Reid.—p. 579.
Experiences in Reception and Treatment of Air Raid Casualties. J. R. Lee—p. 584.
Renal Complications of Sulfapyridine: Account of Case Which Showed Gross Hematuria and Uremia. J. C. Leedham-Green.—p. 586.
Experiments in Treatment of Peripheral Nerve Injuries with Amnioplastin. L. Rogers.—p. 587.
A History of the Rescue and After-Care of Two Cases After Four Days' Burial. G. S. Swan.—p. 589.

Vitamin K in Hepatic and Biliary Diseases.—Reid studied the prothrombin deficiency and hemorrhage in 35 patients with obstructive jaundice, biliary fistula, catarrhal jaundice or cirrhosis of the liver. Definite prothrombin deficiency was found in 16 patients, and these were treated with synthetic naphthoquinone preparations; 8 received 2-methyl-1 : 4-naphthoquinone (menadione) in peanut oil by intramuscular injection, and 8 were given 2-methyl-1 : 4-naphthohydroquinone disuccinate intravenously. Prothrombin estimations were carried out for three to five days before and for seven to ten days after treatment. There were 15 patients with obstructive jaundice due to neoplasm. Their prothrombin index before operation ranged from 31 to 100 per cent, average 65 per cent. The patients were all receiving satisfactory diets; hence deficient absorption of vitamin K appears to be the main cause of a low prothrombin level in obstructive jaundice and biliary fistula. After operation much prothrombin deficiency was encountered in association with much slighter degrees of obstructive jaundice. In 7 a pronounced prothrombin deficiency developed from the second to the sixth day, the prothrombin index being reduced from 5 to 25 per cent in the first twenty-four hours and from 20 to 50 per cent between the second and the sixth day. These 7 patients responded immediately to treatment with naphthoquinone and the prothrombin index rapidly returned to normal; hence liver damage, while it may be a contributory factor, does not play an important part in postoperative deficiency. It appears that a deficient intake of vitamin K (green vegetables were not taken for at least a week after operation) may be important in causing the pronounced postoperative fall in the prothrombin index. Of the 8 patients with nonmalignant obstructive jaundice, all were slightly jaundiced. Before operation the prothrombin index was never below 75 per cent; 6 were operated on. In 4 the prothrombin index ranged between 75 and 80 per cent in the first two postoperative days; thereafter normal values were found. In another patient it fell to 57 per cent on the fourth day and in the sixth patient it fell to 25 per cent after one week, when hemorrhage from the wound was observed. The prothrombin index of the 6 patients with catarrhal jaundice was never below 90 per cent and the plasma bilirubin was 5 and 10 mg. per hundred cubic centimeters respectively in the 2 patients with the mild form of the disease. In the 3 patients with moderate attacks the lowest prothrombin indexes were 80, 72 and 65 per cent and the plasma bilirubin was 18, 9 and 7 mg., respectively. The prothrombin index was 20 per cent and the plasma bilirubin 35 mg. at the height of the disease in the patient with severe clinical manifestations. The amount of prothrombin in the 4 patients with cirrhosis of the liver was always moderately reduced; the index ranged from 65 to 80 per cent. On an ordinary mixed diet the level fluctuated between these figures. Normal values were never reached, and there was practically no response to synthetic vitamin K. From a study of the 3 patients with obstructive jaundice followed by postoperative hemorrhage the author concludes that prothrombin deficiency is not, even when severe, always associated with hemorrhage. It is considered responsible only for prolonging hemorrhage after it has been caused by other factors, especially injury. The water soluble preparation 2-methyl-1 : 4-naphthohydroquinone disuccinate, injected intravenously, has been found as efficient as menadione in increasing blood prothrombin. The action of the first preparation appears to be more rapid though less sustained than the latter. Its disadvantage is that it is not stable and must be dissolved in water immediately before use. A close analogy between hemorrhage in jaundice and hemophilia is made. In both an upset in the coagulation mechanism exists, in the one it is due to prothrombin deficiency and in the other to an unknown congenital defect.

Journal of Laryngology and Otology, London

56:35-80 (Feb.) 1941

Bleeding from Ear as Sign of Leaking Aneurysm of Extracranial Portion of Internal Carotid Artery. N. Young.—p. 35.

Lancet, London

1:529-560 (April 26) 1941

Lymphatic Pathway for Absorption from Nasopharynx. J. M. Yoffey.—p. 529.
Effort Syndrome. E. Wittkower, T. F. Rodger and A. T. M. Wilson.—p. 531.
Rejection of Psychiatrically Unfit Recruits. H. Stalker.—p. 535.
Separation of Serum in Bulk. G. A. Harrison and L. E. R. Picken.—p. 536.
Closed Technic for Fixation of Fractured Carpal Scaphoid. J. R. Armstrong.—p. 537.
*Immunity Reactions After Ultraviolet Irradiation of Skin. A. Eidinow.—p. 540.

Reactions After Ultraviolet Irradiation.—Eidinow studied local reactions and specific immunity response when a standard quantity of antigen (hay pollen toxin or T. A. B. vaccine) was injected intradermally into areas of normal skin of 14 patients and their skin was irradiated with ultraviolet rays. He observed that exposure of the skin to ultraviolet radiation diminishes the local reaction normally produced in allergic patients by scarification and the application of hay pollen toxin. Intradermal injections of hay pollen toxin into an area of irradiated and erythematous skin of allergic patients excites violent symptoms and signs of hay fever or asthma with collapse. Intradermal injections of T. A. B. vaccine into areas of skin rendered erythematous by ultraviolet rays will provoke an agglutinin (H and O groups) titer in the blood serum more than ten times as great as a similar intradermal injection into areas of normal skin. The erythema reaction following exposure of the skin to ultraviolet rays may thus be used to increase local and general immunity.

1:561-592 (May 3) 1941

*Sciatica. J. H. Kellgren.—p. 561.
Absorption of Isoagglutinins from Pooled Plasma or Serum. B. L. Della Vida and S. C. Dyke.—p. 564.
Peptic Ulcer in the Royal Navy: Symptoms and Pathology. R. S. Allison and A. R. Thomas.—p. 565.
Prevention of Experimental Fibroids by Cortical Hormone. A. Lipschütz and L. Vargas Jr.—p. 568.
*Composition of Diphtheria Antitoxic Serums. R. A. Kekwick, B. C. J. G. Knight, M. G. Macfarlane and B. R. Record.—p. 571.

Sciatica.—Kellgren describes a clinical examination which facilitates diagnosis of sciatica. The first point to consider is the distribution of the deep pain and tenderness. The patient is asked to map out roughly the distribution of his deep pain and tenderness. From this information the segmental innervation of

the source of pain, whether superficial or deep, can be determined. The movements of the knee, hip, sacroiliac joints and lumbosacral spine are examined. The appropriate region is carefully palpated for a painful structure, and after it has been defined it is explored with a needle point, when the full spontaneous pain should be reproduced. The painful structure is infiltrated with 2 per cent procaine hydrochloride and in favorable cases the symptoms and signs may be completely abolished; more usually they are only much relieved, as it is rarely possible to anesthetize deep-lying structures. Deep-seated painful structures, such as an interspinous ligament or ligamentum flavum, can be reached with the exploring needle. In the few patients with pain in the lumbosacral spine in which the exploring needle fails to reveal any painful structure it is probable that the source of pain lies inside the spinal canal, and displacement of an intervertebral disk is to be suspected. In cases in which there are clear signs of an intraspinal source of pain but no evidence of nerve involvement, the source of pain is probably the posterior common ligament. More often there is some evidence of pressure on a nerve root; thus an area of cutaneous pain may be added to the area of deep pain. The earliest signs of nerve pressure will be periods of numbness, recovering with tingling but without detectable sensory loss. The next stage consists of hyperalgesia combined with loss of light touch, then loss of all sensation except delayed pain and finally complete sensory loss. These sensory changes are distributed over the dermatome corresponding to the root or roots pressed on, and they form the most reliable evidence of nerve involvement. Muscular paralysis is of value only when it is severe. The ankle jerk is of more value, but it may be absent in cases of simple referred pain distributed over the first sacral segment. Of the author's 70 patients, 50 suffered from ligamentous and muscular lesions; in only 22 of these was any change in the underlying bones and joints revealed in roentgenograms. Of 15 patients with displacement of an intervertebral disk, 13 showed evidence of root pressure and in 2 the pain resulted from a disturbance of the posterior common ligament. The pain of the remaining 5 with nerve involvement resulted from miscellaneous nervous diseases. In no case could the symptoms and signs be ascribed to an interstitial neuritis of the sciatic nerve.

Diphtheria Antitoxic Serums.—According to Kekwick and his associates, examination of diphtheria antitoxic horse serums by electrophoretic analysis has shown that of the three separable globulin components, two, the β (beta) and γ (gamma) fractions, have antitoxic activity. Both these proteins are specific antibodies to the classic diphtheria toxin, prepared with a Park-Williams 8 strain, in that they neutralize this toxin in the usual animal test for potency (L +) and flocculate with the toxin in a balanced mixture (Lf). There are striking differences between the two antitoxins as shown by the flocculation times, the in vivo/in vitro (L + /Lf) ratios and the empiric composition of the floccules. The relative and absolute amounts of the β and γ antitoxins altered during the course of immunization in horses. Initially the amount of γ antitoxin increased more rapidly than the β antitoxin but soon reached a steady value. The β antitoxin of the serum increased more slowly to a much higher maximal value and contributed the major portion of the total unitage obtained at the end of the course of immunization. There may be a correlation between the avidity of a serum and the relative proportion of γ antitoxin present. The γ globulin (containing the γ antitoxin) is precipitated at lower salt concentrations than the β globulin and thus tends to be precipitated in the "euglobulin" fraction in the classic salting out method of serum concentration. The γ antitoxin appears in large measure to be lost in the "pepsin process" of serum concentration, the product there being probably a modified β globulin. Early bleedings during a course of immunization, late bleedings, salt-concentrated antitoxin (pseudoglobulin) and pepsin-treated antitoxin show, in this order, a progressive decrease in the proportion of the total unitage which is contributed by the γ antitoxin. It is possible that the relative and absolute amounts of the two antibodies in any given sample of serum may have a bearing on its therapeutic efficiency.

Medical Journal of Australia, Sydney

1:467-502 (April 19) 1941

*The 1937-1938 Epidemic of Acute Anterior Poliomyelitis in New South Wales, with Special Reference to Change in Age Incidence, Poliomyelitis During Pregnancy and Poliomyelitis Following Tonsillectomy. Karen Helms and W. J. Willcocks.—p. 467.

Value of Tellurite Mediums in Laboratory Diagnosis of Diphtheria. Helen Kelsey and A. D. Harvey.—p. 476.

Syphilis in Pregnant Women. Ella A. Macknight.—p. 478.

Technic and Application of Blood Transfusion and Plasma Transfusion. D. L. Barlow.—p. 480.

Recent Advances in Use of Acridine Antiseptics. A. Albert.—p. 482.

Poliomyelitis.—Helms and Willcocks discuss certain epidemiologic features of the 1937-1938 epidemic of acute anterior poliomyelitis in New South Wales. During the first nine months of 1937 the average monthly incidence was 2 cases. Between October 3 and October 30 5 cases occurred in the metropolitan area and 7 in rural districts. Up to Sept. 30, 1938 there were a total of 711 cases. The epidemic reached its peak earlier in the metropolitan area than in the rest of New South Wales. A study of the meteorologic elements from October 1937 to September 1938 suggest that the temperature and absolute humidity curves exhibit the closest correlation with the increase and decrease in the number of cases. The latter, commencing in spring, attains a maximum in a midsummer month and then declines. A somewhat similar correlation was suggested in the incidence of seasonal rainfall in northern parts of New South Wales. In the metropolitan area, during the early weeks of the epidemic and while the weekly incidence was increasing, severe paralysis developed in a greater proportion of patients than during the later stages of the epidemic. In rural districts the tendency may be masked by the fact that a relatively small population is spread over a large area. The number of deaths was greater in the rural districts at the beginning and at the height of the epidemic than in the later stages. In the metropolitan area there appears to be a tendency for the age group up to 4 years to be proportionately larger and the group more than 15 years of age to be proportionately smaller at the beginning of the epidemic than in its later stages. This tendency may be masked in rural districts for the same reason that the severity of paralysis was masked. The fatality rate in New South Wales was 2.5 per cent, or 17 deaths. For the rural districts it was 4.08 per cent, or 11 deaths. The oldest patient was 63 years and the youngest 7 months of age; 64 per cent of 601 patients were males and 34 per cent females. There were only 5 patients less than 12 months of age. The percentage of patients less than 10 years of age was greater in the metropolitan area (paralytic cases 76.8 per cent) than in rural districts (paralytic cases 53.5 per cent). In the 1937-1938 epidemic of poliomyelitis in New South Wales 5 patients contracted the disease during pregnancy, 1 in the fifth, 2 in the sixth, 1 in the eighth and 1 in the ninth month of gestation. In a study of these instances and 13 others reported in the literature there is only 1 in which spontaneous abortion followed closely on the infection. In 13 of the 15 patients whose pregnancy continued beyond the seventh month, the delivery and the child were normal. In the other 2 cesarean section was performed because of respiratory paralysis. Poliomyelitis in pregnancy uncomplicated by respiratory paralysis is not an indication for the interruption of the pregnancy. In the presence of respiratory paralysis during the last weeks of pregnancy, respiration may be facilitated by the removal of the fetus. Of the 711 patients 7 were known to have had a tonsillectomy and adenoidectomy from seven to twenty-two days prior to the onset of the illness. Bulbar and spinal paralysis developed in 3 of these 7 patients, 2 had paralysis of the palate, 1 had spinal paralysis with no evidence of bulbar involvement and 1 patient had the nonparalytic form of the disease. There were no deaths. A review of the literature supports the contention that operations on the throat and nose favor the development of poliomyelitis of the bulbar type. When this disease is prevalent, the risk of subsequent invasion by the virus should be well weighed before tonsillectomies or adenoidectomies are undertaken.

Cardiologia, Basel

4:313-380 (No. 6) 1940. **Partial Index**

Auricular Fibrillation Following the Injection of Acetyl-β-Methyl Choline Chloride (Mecholyl) During an Attack of Paroxysmal Auricular Tachycardia or Flutter. W. T. Cooke and P. D. White.—p. 313.

Changes of the Chest Leads of the Electrocardiogram Due to Damage of the Heart's Surface. B. Kisch.—p. 318.

*Influence of Gas Mask Breathing on Human Circulation. H. Hofer.—p. 331.

Complete Disappearance of Radical Pulse During Attack of Angina Pectoris (with Remarks on Coronary Theory of Angina Pectoris). F. Mainzer.—p. 361.

Gas Mask Breathing and Circulation.—The development of angina pectoris in a man aged 51 following a gas mask drill, induced Hofer to study the influence of gas mask breathing on the circulation. Investigations were made on 50 persons of both sexes, ranging in age from 16 to 55 years. Electrocardiograms were made during rest and after measured exertion, together with tests of the circulatory regulation according to the Schellong method, which in addition to a systematic control of the pulse and blood pressure measures and evaluates the QRS complex. All tests were made first without and then with the use of the gas mask. The putting on of the gas mask, even with the patient at rest, caused deeper and slower breathing; after the work test all persons manifested dyspnea and profuse perspiration. The pulse was usually somewhat accelerated by breathing through the mask when the person was at rest; during the work test, however, it was somewhat retarded. Systolic and diastolic pressures usually increased when breathing was through the mask by several millimeters, both at rest and during the work test. The electrocardiogram, while breathing was through a mask, revealed slight changes in all parts of the curve, but they were not pronounced or significant and differed only slightly from the usual electrocardiographic changes caused by work tests. It appeared that breathing through a gas mask does not cause a characteristic circulatory effect. At any rate there were no electrocardiographic changes which would indicate unequivocally an anoxemia or coronary insufficiency. The author concludes that gas mask breathing is well tolerated by healthy persons, but that impairment is possible in patients with circulatory disorders and in those threatened by such disorders.

Giornale Ital. di Dermatologia e Sifilologia, Milan

82:1-296 (Feb.) 1941. **Partial Index**

*Estrogen in Gonococcic Vulvovaginitis in Little Girls. A. V. Ferrari.—p. 142.

Estrogen in Gonococcic Vulvovaginitis in Girls.—According to Ferrari, vulvovaginitis in little girls is rare in families practicing hygiene and frequent in families which do not. He observed 147 patients ranging in age from 3 to 10. The condition was complicated by urethritis in 84 and by cervicitis in 60. The internal genitalia were not involved. For therapeutic purposes the author divided the patients in three groups. The first group consisted of 24 patients who presented no urethral or cervical infection. They were given estrogen as the sole treatment. The substance was administered intramuscularly in doses of 10,000 international units (dehydrofolliculin benzoate international units) at five day intervals until ten to twenty injections had been given. The second and third groups consisted of 48 and 75 patients respectively, with and without urethral and cervical complications. Patients in the second group were treated by irrigations of the external genitalia and vagina with a weak solution of potassium permanganate or of vaginal and urethral irrigations with a 2 per cent solution of strong protein silver or silver nitrate, after which a glycerin suppository containing 2 per cent of strong protein silver was inserted into the vagina. They were kept in bed for one hour. The treatment was administered twice daily until the infection was controlled and once daily for a month thereafter. Patients in the third group received estrogen in the same amount as those in the first group and local treatment as given to the second group. Vaccines, proteinotherapy and chemotherapy were not resorted to. Gonococci disappeared from the secretions within thirty days in 18 of the 24 patients who had estrogen alone and in 60 of 75 who were given estrogen and local treatment. Gonococci disappeared from the secretions within forty days in 34 of 48 patients who had local treatment alone. Recurrence took place within six months in 10 of 18 patients of the estrogen group, in 29 of 60 in the combined group and in 15 of 34 of the local treatment group. Cure has been permanent up to the present, four years after discontinuation of the treatment, in 8 of 24 patients who had estrogen alone, in 31 of 75 who had the combined estrogen and local treatment, and in 19 of 48 who had the local treatment alone. Patients with recurrences and failures had two months of rest without any treatment, after which they were given vaccines, proteins or sulfanilamide. Of a large number of patients who had estrogen alone or combined with local treatment the general health improved, the patients gained weight and long standing eczema was controlled. Sixteen patients complained of painful swelling of breasts and 20 of moderate menstrual loss of blood. The symptoms disappeared in the majority of cases on discontinuation of the treatment. One girl, aged 10, presented signs of puberty and began to menstruate as the result of treatment. The author concludes that estrogen treatment is indicated only in exceptional cases of gonorrheal vulvovaginitis recently acquired and in cases without urethral and cervical involvement which are not controlled by the usual treatment.

Minerva Medica, Turin

1:93-116 (Jan. 26) 1941. **Partial Index**

*Sulfanilamide Resistance in Gonorrhea. E. Bizzozero.—p. 93.

Action of Ascorbic Acid on Glycemia of Patients with Liver Diseases. A. Turchetti and G. Schirosa.—p. 96.

Sulfanilamide Resistance in Gonorrhea.—According to Bizzozero, primary or secondary resistance of the gonococcus to sulfanilamide depends on the habituation of the bacteria to the drug when the latter is administered in small doses or at irregular intervals. Seventeen patients with early untreated gonorrhea were given progressively increasing doses of 0.5 to 3 Gm. for ten or fifteen days until a total of 16 or 18 Gm. was reached. This was followed by a four or five day period of rest, after which diminishing doses of 3 to 1 Gm. of the drug were administered up to a total of 12 to 20 Gm. in six to ten days. Resistance to the drug developed in 13 cases in ten to fifteen days. In another group, 30 patients were given 0.5 Gm. of sulfanilamide for three days. Local inflammation and pain abated in all of these. The urine of 16 patients became clear. It contained a few filaments with scanty pus cells. Gonococci disappeared from the filaments in 6 cases. The number of gonococci in the filaments did not change in 10 cases. The author concludes that the bactericidal properties of the drug are impaired if resistance is established. Administration of small early doses of the drug may result in the establishment of resistance. It is therefore advisable to give large doses of the drug from the beginning of the treatment. It would be preferable to interrupt treatment of the few patients who prove to be intolerant to the drug rather than to risk establishing resistance.

Policlinico, Rome

48:289-336 (Feb. 17) 1941. Prac. Sec. **Partial Index**

*Epinephrine in Acute and Chronic Diseases of Brain. F. Serraino.—p. 289.

*Rapid Desensitization with Calcium Before Reinjection of Antitetanus Serum. L. Faraglia.—p. 305.

Epinephrine in Diseases of Brain.—Serraino resorted to intravenous injections of epinephrine in 30 cases of essential or postencephalitic parkinsonism, in 4 of genuine epilepsy, in 3 of acute encephalitis and in 5 of rheumatic chorea. Patients with parkinsonism were given a daily dose of 0.1 or 0.2 mg. of epinephrine for ten days. The treatment was discontinued for from three to five days and then repeated. Children with rheumatic chorea and acute encephalitis were given small doses for from four to eight days and in a few cases a daily dose of 0.1 mg. for the last two days of treatment. The latter was well tolerated. Tremor and tics of patients with parkinsonism improved, whereas hypertonia, oculogyric crises, trophic and secretory disorders were not influenced. Epileptic seizures reappeared five months after discontinuation of the treatment. The convulsions became sporadic after administration of a second series of treatments. Chorea and symptoms of encephalitis

regressed to a complete cure after a number of injections which varied from four to ten. The author believes that epinephrine causes dilatation of the cerebral vessels with consequent improvement of the metabolism of the nervous tissues.

Desensitization with Calcium.—Faraglia injected calcium intravenously in an attempt to prevent anaphylactic reaction from a second or third injection of antitetanus serum. A solution of 0.5 Gm. of calcium gluconate and 0.05 Gm. of calcium lactate in 5 cc. of doubly distilled water was injected fifteen minutes before the intramuscular injection of antitetanus serum in 12 patients who had had antitetanus serum administered to them one or more years previously. Patients who manifested anaphylactic reactions on the first or second injection of the serum were given two intravenous injections of 5 cc. of the calcium solution. None of the 12 patients manifested signs or symptoms of anaphylactic shock. The author concludes that desensitization may be rapidly and safely obtained by intravenous administration of calcium.

Beiträge zur Klinik der Tuberkulose, Berlin

94:635-682 (May 23) 1940

Action of Enforced Confinement in Asylum on Asocial Patients with Open Tuberculosis. A. Aschenbrenner.—p. 635.
Casuistics of Paroxysmal Tachycardia: Case Developing After Inducing Pneumothorax on Right Side. F. W. von der Ohe.—p. 642.
*Relationship Between Primary Tuberculous Infection and Progressive Pulmonary Tuberculosis: Investigations on Nursing Personnel. L. Ljung.—p. 647.
Clinical Significance of Complement Fixation Reaction in Tuberculosis. N. Kusuncki.—p. 656.
*Sepsis Tuberculosa Acutissima. C. Velten and Edith Fatum.—p. 672.

Primary and Progressive Pulmonary Tuberculosis.—Opinions regarding the relationship between primary tuberculous infection and progressive pulmonary tuberculosis are contradictory, and this contradiction is largely due to lack of uniform interpretations and nomenclature. Ljung continued investigations on nurses begun by Kristenson. The group consisted originally of 124 students of the school for nurses at the university hospital in Uppsala. During their three years of training Kristenson repeatedly subjected them to roentgenologic examination. All student nurses were examined at the beginning of their training clinically and roentgenologically. The Pirquet tuberculin test was made and read after forty-eight hours and repeated on nurses whose reaction was negative. Thirty-one student nurses who gave negative reactions to the second test were designated as negative; 23 of these became positive in less than a year, while after two years only 2 remained negative. These 2 were vaccinated with BCG and were disregarded in the subsequent investigation. The remaining 29 nurses with negative Pirquet reactions at the beginning of their training and the 93 who had been Pirquet positive from the beginning were reexamined about ten years later. This follow-up suggested that primary tuberculosis is generally not more dangerous in adults than it is in school children but that a progressive, destructive, postprimary pulmonary tuberculosis may develop already during the first year after the primary infection. There are as yet no data to prove with certainty that progressive pulmonary tuberculosis develops more frequently in those who had their primary infection after attaining adulthood than in those who had their primary infection in childhood. To clarify this question it would be necessary to make repeated tuberculin tests on the entire population. The majority of investigations on nursing personnel indicates that those who in the beginning have negative tuberculin reactions are in greater danger of contracting destructive tuberculosis than are those with positive tuberculin reactions. The destructive reinfection tuberculosis appears especially during the first two years after the manifest or latent primary tuberculosis. Experiences with the nursing personnel cannot be applied to the average population. Whether phthisis will develop in a tuberculous person seems to depend not so much on when the primary infection has taken place but rather on the frequency of incidence of tuberculous infection and especially on the congenital and acquired nonspecific resistance of the person.

Sepsis Tuberculosa Acutissima.—According to Velten and Fatum sepsis tuberculosa acutissima is infrequent. Landouzy was the first to call attention to this form as an independent disease entity. He differentiated three types of acute tuberculosis, namely caseous pneumonia, miliary tuberculosis and typhobacillosis. The last named form pursues a sepsis-like course following acute tuberculous dissemination. The septic manifestations justify its being identified as an independent disease entity. It is characterized by intermittent fever which becomes continuous; by a variable pulse, either accelerated or retarded; by swelling of the liver and spleen, and by gastrointestinal disturbances. In contradistinction to miliary tuberculosis there is no cyanosis, dyspnea or roseola. Characteristic blood changes are absent, but in many cases tubercle bacilli are demonstrable in the blood. This form of acute tuberculosis has been discussed under such terms as "tuberculous sepsis," "sepsis tuberculosa gravissima," "sepsis tuberculosa acutissima" or "areactive generalized tuberculosis." The clinical diagnosis is difficult and possible only if tuberculous bacillemia exists in the presence of Landouzy's syndrome. Some consider correct diagnosis possible only on the basis of microscopic studies done at necropsy. Microscopic studies reveal not inflammatory tissues, as in other forms of tuberculosis, but rather necroses with pyknotic nuclei and nuclear débris not sharply defined against the surrounding tissue. All observers found numerous tubercle bacilli in the necrotic foci. The surrounding tissue is usually free from tubercle bacilli or, at most, contains some bacilli in the vascular walls and the lymph channels. The appearance of extensive necroses without the slightest reaction in the surrounding tissue demonstrates definitely the lack of reactive capacity of the organism. The organism is in a state of negative anergy. Its defensive powers have been depleted and there is an unrestricted dissemination. The state of anergy manifests itself in the negative outcome of the tuberculin reaction. Sepsis tuberculosa acutissima frequently concurs with diseases of the hemopoietic system, such as leukemia, polycythemia, pernicious anemia, panmyelophthisis and acute agranulocytosis. Certain similarities in the clinical course led some investigators to believe that tuberculosis of the hilus lymph nodes is also a form of sepsis tuberculosa acutissima, and some authors admit that these lesions presuppose a similar biologic reaction and that they often present similar clinical aspects. Wyss stated that tuberculosis of the bronchial lymph nodes in children is identical with sepsis tuberculosa acutissima. The authors think that these forms differ in that the tuberculous process by its manifestation in the hilus lymph nodes has already followed a definite pathway, whereas sepsis tuberculosa acutissima represents that undifferentiated state of reaction in which all variations are still possible. They conclude that sepsis tuberculosa acutissima is characterized by the absence of a specific allergy. It is probable that constitutional factors and infection at an advanced age in the presence of temporary deficient resistance play a part in the pathogenesis.

Chirurg, Berlin

12:725-766 (Dec. 15) 1940. **Partial Index**

Sterility During Injections with Special Consideration of Prophylaxis of Gas Gangrene. A. Hübner.—p. 725.
*Arteriectomy in Endangiitis Obliterans. H. Schaer.—p. 730.
Excision of Wounds. W. Noetzel.—p. 739.

Arteriectomy in Endangiitis Obliterans.—Periarterial sympathectomy for the treatment of endangiitis obliterans, introduced by Leriche in 1914, survived, according to Schaer, for a long time in spite of failures and of the anatomic demonstration that not all sympathetic nerve fibers are destroyed in this procedure. It is now generally conceded that the success of a periarterial sympathectomy is only temporary. Leriche himself discarded the method in favor of arteriectomy. Lumbar and cervical sympathectomies were practiced with technical modifications by a number of investigators after 1925. In recent years the opinion has gained ground that ganglionectomy is preferable to division of the rami communicantes. Arteriectomy, introduced by Leriche in 1916, has found more adherents in recent years. Leriche maintains that a thrombosed artery is the starting point of many vasoconstrictive reflexes which prevent formation of a collateral circulation and that for this reason every localized arterial thrombosis should be removed by a resection extending in each direction beyond the obliteration. This procedure resulted

in 38 per cent of cures of cases of Buerger's disease and in 43 per cent of cases of arteriosclerotic obliteration. The author employed this method in 4 cases. The treatment resulted in a failure in 1 case, while in another case the improvement was only temporary. In the other 2 cases the treatment proved highly successful and the results permanent. The author stresses that after all conservative measures have been exhausted an arteriogram should be made to determine the local extension of the process. The thrombosed artery should be removed as completely as possible. If the thrombosis is too extensive to permit surgical removal of all the diseased vessel, ganglionectomy or resection of the sympathetic trunk is advisable.

Der Deutsche Militärarzt, Berlin

5:513-584 (Dec.) 1940. **Partial Index**

Treatment of Infected Craniocerebral Gunshot Wounds in War Hospital. W. Schulze and W. Betzendahl.—p. 514.
Special Hospitals for Gunshot Fractures: Experiences During Spanish War. F. Jimeno-Vidal.—p. 529.
Splint for Extension Treatment of Arm and Leg. E. Heller.—p. 537.
Gymnastics in Military Hospitals. J. Menges.—p. 540.
Transferring Wounded on Stretchers. H. Kritzler-Kosch.—p. 547.
Production and Estimation of Canned Foods from Standpoint of Military Hygiene. L. Stutz.—p. 549.
*Does Inhalation of Horse Dust Containing Cutaneous Scales Produce Allergy Against Horse Serum? W. Sprügel.—p. 559.

Inhalation of Cutaneous Scales from Horses and Allergy to Horse Serum.—Reports to the effect that inhalation of cutaneous scales of horses can produce hypersensitivity to horse serum induced Sprügel to investigate the subject in soldiers who come in contact with horses. He made tests on two groups of 50 soldiers each. One group was in constant contact with horses, whereas the other was composed of men who had never been in contact with horses. Previous serum injections or consumption of horse meat was ruled out. Intracutaneous wheals were produced with 0.05 cc. of horse serum diluted 1 : 10 with physiologic solution of sodium chloride. Of the 50 men who handled horses, 19 showed after from ten to thirty minutes local redness and mild swelling up to the size of a quarter (24 mm.) about the site of injection. Only two men showed more severe reactions, somewhat like urticarial wheals, the areas varying in size from a silver dollar (38 mm.) to the palm of a small hand. The other 29 men who handled horses had negative reactions. Of the group of men who had never been in contact with horses, 21 reacted with local redness and mild swelling, one man reacted by developing a wheal. The other 28 had a negative reaction. The high percentage of "positive" reactors is without significance because, as H. Schmidt has pointed out, a specific reaction is characterized by the development of a wide urticarial ring with occasional pseudopodia-like projections into the surrounding area of erythema. Simple redness and mild swelling are pseudoreactions of a nonspecific nature. The almost identical percentages in the two groups indicate the unlikelihood of inhalation of horse scales producing an allergy against horse serum. The antigen of the cutaneous scales which elicits attacks in asthma patients sensitive to horses is presumably not the same antigen as the protein of horse serum.

Folia Pharmacologica Japonica, Kyoto

31:1-184 (Feb.) 1941. **Partial Index**

*Experimental Studies on Treatment of Malaria: I. Combination Treatment of Malaria in Canaries with Quinine and Sulfonamide. M. Terasak, T. Sugimoto and N. Kinosita.—p. 180.

Sulfonamide Derivatives and Quinine in Malaria.—Terasak and his associates endeavored to ascertain the synergistic action of sulfonamide derivatives in combination with quinine in the treatment of malaria in canaries. It is known that the sulfonamide series of drugs alone are ineffective in curing this parasitic disease, but this investigation shows that when used as a supplement to quinine they exert an appreciable therapeutic effect. The first part of the report deals with the authors' attempt to determine the toxic and lethal doses of various sulfonamide drugs on canaries. The five different compounds tested in this respect show a marked difference, azosulfamide being the least toxic (the lethal dose 75 mg. to 10 Gm. of body weight) and both sulfanilamide and sulfapyridine the most toxic (the lethal dose 15 mg. to 10 Gm. of body weight). When compared with the lethal dose for mice, the relative toxicity of these preparations was approximately identical. For the second stage of their investigation the authors transmitted the disease to canaries by intramuscular injection of 0.2 cc. of about 10 per cent suspension of infected blood in physiologic solution of sodium chloride. The sulfonamide derivatives were injected on the ventral aspect of the bird, while quinine was administered on the dorsal aspect, the injections having been continued once daily for five days in each bird. From a small series of experiments the authors were able to prove that when given alone the sulfonamide derivatives exerted no therapeutic effect, the bird dying in about two weeks as in the case of untreated controls. The administration of quinine hydrochloride alone, on the other hand, led to the cure of the disease in the bird but required four weeks of therapy; but quinine in combination with sulfonamide derivatives so effectively hastened recovery that in some instances the number of parasites in the peripheral blood was never high, while in the remaining cases the course of the disease was shortened by at least one week. Further investigations along this line are in progress.

Okayama-Igakkai-Zasshi, Okayama

53:187-400 (Feb.) 1941. **Partial Index**

*Experimental Studies on Skin Absorption of Testicular Hormone. N. Sato.—p. 187.

Cutaneous Absorption of Androgen.—The substance used by Sato in his experimental observations was prepared from the whole male organs of mammals by a pharmaceutic concern and, although it was not a pure chemical substance, contained a potent androgenic principle. The test animals (Mus norwegicus var. albus) were anesthetized with ether and the testes were completely removed, care being taken to avoid undue traumatization of the epididymis. The experimental procedures were begun on the fourth day after the operation, one group of animals receiving daily subcutaneous injections of 0.2 cc. of the substance, the second treated with inunctions of 0.2 cc. over a shaved skin area approximately 6 sq. cm. twice or thrice daily, and the third group left untreated as controls. After twenty-five days of treatment the animals were killed and the tissues around the sex organs carefully removed and immediately fixed in solution of formaldehyde U. S. P. diluted 1 : 10, in which they were dehydrated for twenty-four hours. Each component part of the sex organ (penis, prostate, seminal vesicle, epididymis, seminiferous tubule) from each animal was then dissected out and weighed on a torsion balance. The results of determination showed that, on the basis of the weight of each organ of the control group as 1, the organs of the androgen treated animals increased in weight from 1.3 to 1.7. The animals receiving the substance by injection exhibited a slightly greater gain in weight of the sex organs than those of animals treated by inunction. The preparation used in these experiments being lipid soluble, the author tinted the substance with sudan III, and the microscopic sections of the androgen-anointed skin revealed the concentration of the dye at the root of the hair follicles and the accumulation in the sebaceous glands of the skin. From these observations the author concluded that either by the injection or by the inunction of androgen on the skin of castrated animals the atrophy of the sex organs could be prevented and that the substance was absorbed through the sebaceous glands of the skin.

Vrachebnoe Delo, Kharkov

22:641-720 (No. 10) 1940. **Partial Index**

*Closed Plaster Method of Treatment of Gunshot Fractures. S. A. Novotelnov.—p. 641.
Effect of Lumbar Punctures on Experimental Traumatic Edema of Brain. A. L. Fisanovich.—p. 649.
Effect of Neuropsychic Factors on Functional Characteristics of Transfused Blood. A. P. Dementiev and G. Yu. Malis.—p. 653.
Stomach in Strangulated Femoral Hernia: New Method of Emergency Repair of Hernial Opening. D. G. Aleksandrovskiy and I. G. Degtyarev.—p. 655.
Complaints of Cardiac Patients. M. V. Burgsdorf.—p. 657.

Closed Plaster Method of Treatment of Gunshot Fractures.—Extensive experience with the closed plaster of paris method of treatment of gunshot fractures in the orthopedic clinic of Professor Turner in Leningrad has demonstrated, according

to Novotelnov, its superiority over the older methods. Certain physiologic principles, however, must be adhered to, namely application of the cast with the limb in physiologic position; that is, with the two adjacent joints slightly flexed. The function of the cast is to immobilize the fragments and the extremity, including the two adjacent joints. Wounds were treated by careful débridement, covered with dry gauze (never cotton) and encased in circular plaster of paris bandages. Primary suturing of wounds was not practiced. Badly infected wounds were covered, after wide excision, with gauze saturated in physiologic solution of sodium chloride or hypertonic saline solution and circular plaster of paris bandages were applied. The wounds were not redressed for periods of from ten to forty days. When a rise in temperature, leukocytosis, the sedimentation test and the patient's general condition necessitated a change of dressing, a window was cut in the cast, dressings were changed and the window closed by fresh plaster of paris circular bandages. Saturation of the cast with discharges from the wound and the offensive odor do not constitute per se an indication for removal of the cast. The closed plaster method has been adopted as standard procedure in Professor Turner's clinic for gunshot fractures of the shoulder, arm, elbow, wrist, knee, leg and foot. In fractures of the femur, the method is used only when there is no shortness of the leg or when the difference in length of the two legs does not exceed 2 cm. Limbs with more extensive shortening are treated by traction in a Böhler's splint. As soon as consolidation is evident (on an average of thirty days) the traction is discontinued and the circular plaster cast is applied. Septic wounds and wounds infected with anaerobes were treated by hypertonic salt solution. The author relies in combating infection principally on physical rather than on chemical antisepsis. This consists of efficient drainage of the wound, of keeping the wound at rest by fewer dressings and of placing the entire limb at rest. A comparison of the results obtained with the closed method and with the method in which a window was cut out to allow frequent dressings demonstrated that better results were accomplished both for the fresh and for the already infected wounds with the closed method. The favorable effect of the closed plaster method is probably due in part to conservation of moisture and heat, elements essential in regeneration of tissue. Mortality with this method for a period of four months amounted to 0.4 per cent. There was not a single amputation. Septic patients were given sulfanilamide in a solution of dextrose intravenously and vitamin C. For severe neuralgic pain and for the phantom pain after amputation, vitamin B_1 in physiologic solution of sodium chloride was given in daily doses of 5 mg. intravenously, intramuscularly or subcutaneously. In the last two months, the author's clinic has adopted the use of prepared specific polyvalent pyogenous bacteriophage. The bacterial flora of the wound contained not infrequently Bacillus perfringens and other anaerobes, but there was no instance of anaerobic infection. Apparently anaerobes develop only in tissues previously damaged by the action of pyogenic micro-organisms, in particular by the Streptococcus. While the number of patients treated with bacteriophage is too small to form a definite conclusion, the author is under the impression that the combination of the two methods, closed plaster method and the application of bacteriophage, improves the results of the closed plaster method alone.

Nordisk Medicin, Stockholm

Hospitalstidende

9:323-402 (Feb. 1) 1941. **Partial Index**

*Diagnosis of Cancer of Lungs with Special Regard to Possibilities of Early Diagnosis. N. Christiansen.—p. 327.
*Xanthomatosis in Vascular System. J. Hoffmeyer.—p. 365.

Early Diagnosis of Cancer of Lungs.—Christiansen says that in order to arrive at the earliest possible diagnosis of pulmonary cancer there must be collaboration between the general practitioner, to find cases with a suggestive history, the diagnostic clinic, to single out the objectively suspected cases, and the thoracic surgeon, to decide whether a tumor of the lung is present and whether it is operable. He stresses the essential cooperation of the practitioner, who must constantly have in mind the diagnosis of a pulmonary tumor; his task is difficult, since primary malignant pulmonary tumors are still infrequent in the general practice and the initial symptoms are often atypical. The symptoms of cancer of the lung are irritation, occlusion, ulceration, infection, invasion, compression, toxemia and metastases. The peripheral, so-called parenchymatous, tumors may develop for a long time without pulmonary symptoms and may first be manifested by their toxic effects, eventually in combination with symptoms of compression. Only cases presenting symptoms in the first four categories may be considered operable, and none of these symptoms can be said to be pathognomonic for cancer. The author suggests that all patients over 35 years of age with pulmonary symptoms of uncertain etiology, especially when tuberculosis cannot be established, who do not improve after medical treatment of from four to five weeks should be suspected and examined more closely; patients with hemoptysis, pain in the thorax and dyspnea, when another cause cannot quickly be established, should be examined without delay and those with a general toxic condition should also be suspected, even though pulmonary symptoms are absent. Of his 28 cases of histologically verified malignant tumor of the lung only 6 were in an early stage and only 2 of these had been recognized on the first examination. He concludes that while the chances of detecting a lung cancer while it is still operable are slight, the interest of the physician in early diagnosis has been awakened and one may, thanks to modern surgery, look to the future with some optimism.

Xanthomatosis in Vascular System.—Hoffmeyer describes in detail a case of essential general xanthomatosis in a woman aged 46 with a history of xanthomatous nodules localized symmetrically in the tendons and fasciae of both upper and lower extremities for many years, rapid development of a typical clinical angina pectoris during a year and a half and death with symptoms of coronary thrombosis. There were pronounced xanthomatous changes in the endocardium, aorta, coronary arteries, carotid and basal arteries of the brain, together with significant lipoid deposits in the small arteries and the arterioli and pathologic fat deposits in the liver, kidneys, adrenals and thyroid gland. The author asserts that the pathologic anatomy of vascular xanthomatosis greatly resembles that of arteriosclerosis, the differences observed being quantitative, and suggests that arteriosclerosis may develop on the basis of a far weaker and less acute disturbance of the cholesterol metabolism than that in vascular xanthomatosis. While the etiology of essential xanthomatosis is uncertain, a hereditary factor, he says, undoubtedly plays a part.

9:481-550 (Feb. 15) 1941

*Eye Symptoms in Malignant Tumors of Rhinopharynx. E. Godtfredsen.—p. 493.

Eye Symptoms in Malignant Tumors of Rhinopharynx.—Godtfredsen stresses the vague and uncharacteristic early symptoms in malignant tumors of the rhinopharynx. In not a few cases the general condition is surprisingly good. Metastases to the lymph nodes occur early, with typical localization below the mastoid process and behind the mandibular angle. The close relation of the tumor to the base of the brain and its tendency to invade cause lesions of the cranial nerves, especially the nerves of the eye. Of the 64 malignant tumors of the rhinopharynx in patients aged from 16 to 76 treated at the Copenhagen Radium Station from 1931 to 1940, 20, or 30 per cent, showed eye symptoms, most often paralysis of the abducens (17 cases), least often lesion of the optic nerve (4 cases). In all, fifty lesions of the nerves of the eye were established in the 20 patients. The author says that, while the prognosis in these tumors is grave, roentgen therapy according to Coutard's principle can, if instituted in time, lead to recovery. Of the 20 patients, 7 were alive and without symptoms after an observation period of from six months to seven and one-fourth years.

Book Notices

Chemical Warfare. By Curt Wachtel, Founder Pharmacological Section of the Kaiser Wilhelm Institute. Cloth. Price, $4. Pp. 312. Brooklyn: Chemical Publishing Co., Inc., 1941.

This is essentially a primer of chemical warfare, intended to be "comprehensible not only to chemists, physicians, engineers and military experts, but also to the laymen who are the prospective individual victims of the war gases." Consequently it is not to be compared with the standard works on the subject as a source of technical information. It was obviously hastily put together and was edited poorly or not at all. In spite of its numerous defects it makes interesting reading, largely because it is written in narrative style, because it records the personal experiences of the author, who played an active part in chemical warfare in the first World War, and because it summarizes a large amount of information concerning individual chemical agents. The name of Fritz Haber, originator and director of the Chemical Section of the German War Department and also originator of the process used for fixing atmospheric nitrogen, is prominent in the book. The volume may be read with profit by those who wish a general, rather than a technical, treatment of the subject of chemical warfare, including its economic as well as its chemical and military aspects.

Surgery of Modern Warfare. By Sixty-Five Contributors. Edited by Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London. In Two Volumes. Volume I. Cloth. Price, $10. Pp. 480, with 502 illustrations. Baltimore: William Wood & Company, 1941.

The editor of this work is well known to surgeons of the Western Hemisphere through his writings and his textbook on Physical Signs in Clinical Surgery. In this volume are demonstrated anew the qualities that made his textbook so popular, the free, almost extravagant use of illustrations to amplify and adorn the clear and concisely written matter of the book. After reading the names of the contributors one must agree with the editor's statement that "This is a work written by a team which can claim to represent British surgery." The contributions come from surgeons in all arms of the services and from all parts of Great Britain.

This volume is divided into eight sections, each one comprising a varying number of chapters. Sections 1 and 2 cover wounds in their general and special considerations. The next three sections deal with wounds of the trunk, blood vessels, peripheral nerves and tendons. Section 6 gives methods of immobilizing the limbs, section 7 covers wounds of the hand and foot, while section 8 begins the consideration of wounds of the bones and joints. With such a large number of contributors, one might expect an appreciable variation in interest and presentation in the many chapters, each by a different author; but while there is inevitably a slight overlap of subject matter, it does not make for annoyance and it is free from irritating redundance. At the end of most chapters are given pertinent references to source material.

It is inevitable that much of the subject matter is based on, or at least compared with, surgical experience in the last war, the lessons of which we have had a chance to analyze. It is, perhaps, regrettable that with fortunately limited opportunities the writers have not been able to give a final answer to questions arising from the changing philosophy of the care of wounds and chemotherapy. The book is written by men actually engaged in caring for those injured by all destructive methods of totalitarian warfare and they can give only what opportunity has offered them to learn. The final conclusions will be written later.

Methods, apparatus, technics and surgical philosophy are given in the most vivid and practical style, aided by more than five hundred illustrations. These range from helpful line drawings to beautiful colored reproductions of wounds. The latest views on shock, burns, chemotherapy, oxygen therapy, transfusion and preparation of plasma, and the use of heparin, are included and well presented. It is impossible to choose for special praise or censure any of the sections, since all are up to date and authoritative.

The second volume will cover problems associated with neurosurgery, with sections on administration, transport and organization of hospitals and its services.

The book is easy to handle, the pages and print make it easy to read. It is a volume for the library and not for the field. One must respect the opinions of the writers because of past achievements, and they have written now amid changing methods and in the face of new and dreadful problems. The book can be read with interest and profit by surgeons familiar with and skilled in the care of traumatic lesions, although much of the subject matter will be elementary to them. It will prove a veritable necessity to the surgeons whose efforts have been confined to the usual civilian practice but whose activities may be transferred to the care of trauma in the mass. War minimizes specialization; therefore, this book is heartily recommended to any one interested in the care of the injured, whether student, intern, military or civil surgeon, surgical specialist or general surgeon. It gives the views of today; the truth will crystallize tomorrow.

The Therapy of the Neuroses and Psychoses: A Socio-Psycho-Biologic Analysis and Resynthesis. By Samuel Henry Kraines, M.D., Associate in Psychiatry, University of Illinois College of Medicine, Chicago. Cloth. Price, $5.50. Pp. 512. Philadelphia: Lea & Febiger, 1941.

Another textbook of psychiatry appears on the American book list and another disappointment. This is one more psychobiology with all the wordiness that usually goes into such a product. The usual orthodox categories are described in the usual terms of stress and faulty habits, of constitution and specific attitudes or reaction patterns. The author's language becomes so involved that one can only accuse him of thoroughness to confusion rather than error. When it comes to therapy, which is the real object of discussion, the reader is amazed at the naïveté expressed: "As the discussion reveals specific attitudes or reaction patterns which are in themselves unhealthy and which have contributed to the emotional instability of the patient, the physician enlists the cooperation of the patient in ascertaining the origin of the particular attitude. When the cause, or more usually the causes, are determined, the patient's reactions to the causes is discussed and the better attitudes which should have been used are suggested in order to remove any resentment still existing in the unconscious" (p. 127). The author has not one single reference to another book or journal except, after stating that psychoanalysis may appear as fantastic nonsense (p. 424), he gives a lengthy abstract from a textbook of psychoanalysis in such garbled fashion as to convince the unknowing reader that it is nonsense, as Kraines believes. If it has as yet not become clear, the reviewer emphatically believes the book can only confuse and disorient the reader who has curiosity regarding the field of psychiatry.

The Heart in Pregnancy and the Childbearing Age. By Burton E. Hamilton, M.D., Cardiologist, since 1921, to The Boston Lying-in Hospital, Boston, and K. Jefferson Thomson, M.D., Associate Physician, Metropolitan Life Insurance Company Sanatorium, Mount McGregor, New York. With a section entitled Delivery and Obstetrical After-Care of Cardiacs. By Frederick C. Irving, M.D., F.A.C.S., Professor of Obstetrics, Harvard Medical School, Boston. Cloth. Price, $5. Pp. 402, with illustrations. Boston: Little, Brown & Company, 1941.

This is a comprehensive book on every aspect of heart disease that may occur in women during pregnancy and the childbearing age. The book is divided into three parts, the first of which deals with the cardiac in pregnancy, the second takes up physiology of the circulation in normal pregnancy and in pregnant women with heart disease and the third comprises the heart diseases in pregnancy and the childbearing age. Hamilton, who practices as a general cardiologist, has been in charge of the heart clinic at the Boston Lying-in Hospital for the last twenty years and Thomson spent three years as full time research worker at the same hospital, devoting a great deal of time to physiologic studies of the heart and circulation. The authors are therefore distinctly well qualified to write a book on heart disease in pregnancy. The book is based chiefly on the authors' extensive experience comprising 850 cardiac patients among 48,190 pregnant women (1.7 per cent) but they frequently refer to the studies of other investigators. The section dealing with the delivery and obstetric after-care of cardiac patients was written by Frederick C. Irving, professor of obstetrics at the Harvard Medical School. The book is easy to read and

contains numerous case histories which are highly instructive. The type is clear and there is a well prepared index. This book contains so much valuable data not only of the physiology and pathology of the heart but also of the proper diagnosis and management of heart disease in pregnant and puerperal women that every cardiologist, internist and obstetrician should be familiar with its contents.

The Doctor and the Difficult Child. By William Moodie, M.D., F.R.C.P., D.P.M., Medical Director, London Child Guidance Clinic and Training Centre. Cloth. Price, $1.50. Pp. 214. New York: Commonwealth Fund; London: Oxford University Press, 1940.

This is a book to be welcomed by pediatricians, general practitioners and intelligent laymen, for it lives up to the opening statement of the author's introduction: "This is not a scientific treatise; it is rather an informal discussion of fundamental disturbances of behavior or personality in children and how they can be recognized, investigated and treated." The well organized text is unencumbered by medical terms and theories of treatment. Throughout, the author stresses the necessity of determining the underlying cause of the disturbance and the importance of work, security and affection in maintaining a healthy child. Numerous case histories amplify each point. The pediatrician and general practitioner will find the suggestions for diagnosis through interpretation of the child's play, drawing and conversation valuable in their own work. Laymen will not only learn what to expect of normal children but will gain an excellent foundation for understanding their children and for further reading.

O prodolzhitelnosti zhizni geterogennykh i gomogennykh eritrotsitov v krovyanom rusle rettsipienta; eksperimentalnoe issledovanie. [By] N. S. Voronov. [Duration of Vitality of Heterogenous and Homogenous Erythrocytes in Blood Stream of Recipient; Experimental Study.] Paper. Price, 4 rubles. Pp. 96, with 7 illustrations. Rostov on Don: Rostovskoe Oblastnoe Vedomstvennoe Izdatelstvo, 1940.

The monograph deals with an experimental attempt to determine the survival of the transfused red blood cells in the circulation of the recipient. Experiments were made with both heterogenous and homogenous bloods. The method of investigation developed by the author is based on the well known phenomenon of Bordet that serum of an animal of a certain species when immunized with erythrocytes of an animal of another species acquires the property of dissolving erythrocytes of the latter only. The method allows of both the qualitative and the quantitative determination of the erythrocytes in the blood circulation of the recipient. Transfused heteroerythrocytes are eliminated rapidly, although wide differences were found for different species. Homoerythrocytes of the citrated blood, on the other hand, survive up to two months. The erythrocytes of conserved blood are eliminated from the circulatory blood of the recipient as early as the fifth day. This is a worth while contribution to the general subject of blood transfusions. It is in Russian and does not contain the usual summary in any of the more readily accessible languages.

Lectures on Diseases of Children. By Sir Robert Hutchison, Bart, M.D., F.R.C.P., Consulting Physician to the London Hospital, London, and Alan Moncrieff, M.D., F.R.C.P., Physician to the Children's Department, Middlesex Hospital, London. Eighth edition. Cloth. Price, $6.75. Pp 471, with 107 illustrations. Baltimore: William Wood & Company, 1940.

This edition has been revised and brought up to date by Dr. Alan Moncrieff. The chapters on infant feeding and artificial feeding are entirely new. The chapter on digestive disorders of infancy has been revised, and there has been extensive change in the chapter on behavior problems in childhood. As originally constituted, this book consisted of lectures delivered as a systematic course in pediatrics. As such it expressed one man's views and was necessarily to some extent dogmatic in character. It is the opinion of the reviewer that, in the revision of the book by the co-author, other views and a limited citation of the literature might have benefited the student for whom the book is intended. This is a pedagogic question which must be answered by the individual teacher according to the previous preparation and advancement of the student body. The book is excellently illustrated and well printed, has a complete index, and will serve its purpose as an aid to the student and teacher of pediatrics.

Magic in a Bottle. By Milton Silverman, Ph.D. Cloth. Price, $2.50. Pp. 332. New York: Macmillan Company, 1941.

This book does for the chemical trail breakers what De Kruif's "Microbe Hunters" did for the bacteriologic pioneers. The author, by virtue of his experience in scientific circles on the Pacific Coast especially in connection with the Golden Gate International Exposition, is well qualified to write it and has done so ably. The book deals with the discovery and introduction of morphine and quinine, digitalis, cocaine, the antisyphilis drugs, acetylsalicylic acid, barbituric acid and its derivatives, the vitamins, the hormones and the sulfanilamide group. The book is written in the best tradition of popular science writing. All the heroes are struggling young men with big ideas which are scornfully rejected by scientific stuffed shirts. Right always triumphs, which makes for the progress of science and also makes excellent reading. Much of the commendably accurate but regrettably dull scientific writing for the public could be greatly improved with a little touch of human nature and drama so interestingly supplied in this book. Those who read it will know much more about the medicines their doctor uses and in the process of learning they will be agreeably diverted and pleasantly stimulated.

Tumores primitivos malignos broncopulmonares: Cáncer, sarcoma, linfogranuloma. Por Julio Palacio, professor adj. de clínica médica de la Fac. de med. de Buenos Aires, y Egidio S. Mazzei, Prof. adj. de clínica médica de la Fac. de med. de La Plata. Paper. Pp. 401, with 129 illustrations. Buenos Aires: El Ateneo, 1940.

The great increase in the occurrence of cancer of the lung in the last few years has offered a large material for clinical and pathologic study. This volume emphasizes especially the clinical side and in addition to carcinoma includes sarcoma and a short section on Hodgkin's disease of the lung. It furnishes an excellent survey of the subject from this special aspect. There are some well reproduced colored plates showing the gross aspects of interesting types of lung tumors, and photomicrographs of the various forms of carcinoma of the lung. What is most interesting is a large series of roentgenograms of the lung lesions, which are well reproduced. There is a complete bibliography, which is on the whole accurate as far as has been verified, though the proofreading of names and some foreign words could be improved. For those who are familiar with Spanish this is a useful treatise.

Die Appetitlosigkeit im Kindesalter. Von Julius Surányi, Oberarzt am Stefanie-Kinderspital, Budapest. Paper. Price, 6 Swiss francs. Pp. 128. New York: Nordmann Publishing Company, Inc.; Basel: S. Karger, 1940.

This small monograph on anorexia in childhood is a reprint from *Annales Paediatrici* (**155**:177 [July-Aug.], 345 [Sept.] 1940). The etiology of anorexia is considered from an organic, a nutritional and a psychic basis, and the prophylaxis of anorexia is discussed. Specific therapy for anorexia includes dietary instructions, vitamin therapy and treatment of diminished digestive secretion. In a disease condition the causes of which are so diverse, one realizes that no single specific therapeutic agent is universally applicable. Among the remedies recommended to stimulate appetite are iron, copper and liver for anemia; arsenic, strychnine and other tonics are also recommended, and the use of insulin is included. Finally, two pages are devoted to psychic therapy. The author has presented a review of the literature, although he has not presented any new or startling discoveries as to the nature and treatment of the condition.

You . . . Might Like Pharmacy as a Career: An Occupational Brief Prepared by Western Personnel Service Under the Sponsorship of the University of California as a Report of Works Projects Administration, Official Project No. 65-1-07-2258. Paper. Price, 25 cents. Pp. 14. Pasadena, California: Western Personnel Service, 1940.

On the inner title page appears the additional information that this "brief" is a report of the Works Projects Administration, Official Project No. 65-1-07-2258. The brochure sets forth in glowing language the opportunities and advantages of pharmacy as a vocation. The somber side of the picture is discreetly veiled.

Sella turcica und Konstitution: Versuch einer Sellagrössen- und Formdeutung innerhalb konstitutionsmedizinischer Gefügue. Von Dr. med. Hans-Otto Martin. Eine Gemeinschaftsarbeit aus der Charité Berlin. Boards. Price, 5.70 marks. Pp. 107, with 9 illustrations. Leipzig: Georg Thieme, 1941.

This small monograph has for its purpose the correlation of the shape and size of the sella turcica, as seen in roentgenograms taken under standard conditions, with various constitutional states. It is based on the statement (p. 10) that in view of the facts that no one gland of internal secretion can be regarded separate from the entire endocrine system and that the hypophysis occupies a central position in this system we are justified in examining the sella turcica not only in hypophysial disorders but in other endocrine and neuropsychiatric syndromes as well. The author attempts to draw correlations between sellar structure and disturbances of the development of the capillary bed in myxedema. Efforts at finding some significance in so-called bridging of the sella turcica (pp. 26-28) were not very successful. It was not possible to correlate any particular constitutional type with any particular form or size of the sella, but as generalizations the author was able to say that in tall and acromegaloid persons the sella is usually large and round, in the asthenic and thin it is usually small, whereas in those with retarded growth the sella turcica may be either large or small. The results of this investigation presented here cannot be regarded as of far reaching significance.

Principles of Abnormal Psychology: The Dynamics of Psychic Illness. By A. H. Maslow, Ph.D., and Béla Mittelmann, M.D. Cloth. Price, $3.50. Pp. 638. New York & London: Harper & Brothers, 1941.

This is a good year for students of psychology, for here is at last a dynamic, vibrant textbook of psychology that cannot be ignored by academic teachers. In this volume human conduct, motivation and dynamics are discussed in relation to actual patients in real situations. The book is written for college students, but its brilliant, accurate yet lucid expositions indicate its usefulness to medical students and general practitioners. No one point of view or school is followed, for the interests and background of the authors are broad and thorough. There is an excellent index and glossary; extensive references and suggested readings are profuse and interpolated throughout the text. The headings and subdivisions of the book make reference work extremely easy. This is a book that can be unequivocably recommended for those interested in abnormal psychology.

On Nicotinic Acid: Especially Methods for Its Quantitative Estimation in Organic Material. By Erik Bandier. Translated by Dr. P. G. Lund. Denne Afhandling er af det lægevidenskabelige Fakultet antaget til offentlig at forsvares for den medicinske Doktorgrad. København, 1940. Paper. Price, 10 Danish kroner. Pp. 165, with 8 illustrations. Copenhagen: Ejnar Munksgaard, 1940.

This book consists largely of a summary of the experimental work conducted by the author during the past three years. The first chapter gives a historical account of nicotinic acid and a description of its clinical and pharmacologic properties as well as its use in therapy. A rather complete summary of the other pyridine derivatives found in the human and animal organisms follow in the second chapter, but most of the remainder of the book gives the detailed results obtained from nicotinic acid determinations on biologic material by the cyanogen bromide method. The values given for the nicotinic acid content of various tissues check fairly well with the few figures available in the literature. The author points out that nicotinic acid is excreted partly as free nicotinic acid and partly in combined forms. After ingestion of 90 mg. of nicotinic acid by fasting healthy persons only 15 per cent was recovered in the urine. Similar results have been reported by other workers. The entire book gives emphasis to the limited amount of knowledge concerning the metabolism of nicotinic acid in the human body and to the great need for much more work.

Feeding Our Old Fashioned Children: A Background for Modern Mealtimes. By C. Anderson Aldrich, M.D., Associate Professor of Pediatrics, Northwestern University Medical School, Chicago, and Mary M. Aldrich. Cloth. Price, $1.75. Pp. 112, with 6 illustrations. New York: Macmillan Company, 1941.

Probably the most common problem presenting itself in pediatric practice is that of the child who will not eat. This book has been prepared in an effort to aid parents in the solution of that situation. The first ten chapters of the book are devoted to presentation of the problem and discussion of the etiologic factors contributing to the refusal of food. The last chapter is concerned with the treatment of the child afflicted with anorexia. Unfortunately, parents do not become aware of the problem until it is well established; hence it would seem that more material should be devoted to the unraveling of the situation rather than to the discussion of the elements responsible for its inauguration. The theories and ideas presented appear sound. On the other hand, it would appear that the field of usefulness of this book is somewhat limited.

Dyke's Automobile and Gasoline Engine Encyclopedia: The Elementary Principles, Construction, Operation and Repair of Automobiles, Gasoline Engines and Automobile Electric Systems; Including Trucks, Tractors, Motorcoaches, Automotive Diesel Engines, Aircraft Engines and Motorcycles. Simple, Thorough and Practical. By A. L. Dyke. Nineteenth edition. Cloth. Price, $6. Pp. 1,244, with illustrations. Chicago: Goodheart-Willcox Company, Inc., Publishers, 1941.

As the title indicates, this book of nearly fifteen hundred pages is encyclopedic in its information about automobiles and gasoline engines. In compiling the data the author had in mind the car owner, the repair man and the student. He discusses the underlying scientific principles involved in each subject and makes the book practical in various ways, including thousands of pictures, plans, diagrams and charts, some in color. There is a section on "Trouble Shooting" with charts in color to enable the reader to locate quickly trouble about his car. The working principles of trucks and tractors also are illustrated and discussed. There are special instructions on testing and adjusting various parts of the automobile. This edition has been revised and enlarged. The author has endeavored to make the information readily available by including thousands of lines of index. The book has been encumbered somewhat, however, by the inclusion of two different indexes, an addendum and various folded inserts. There are many practical suggestions which will enable the reader to meet emergencies and to maintain a car.

Photodynamic Action and Diseases Caused by Light. By Harold Francis Blum, Ph.D. American Chemical Society Monograph Series, No. 85. Cloth. Price, $6. Pp. 309, with 50 illustrations. New York: Reinhold Publishing Corporation, 1941.

This volume is a treatise on photodynamic action and radiation, both artificial and natural, on the human being and on animals. It deals with diseases produced in men and in animals by radiation. The book contains a generous review of the literature on this rather restricted branch of medicine and embraces material contributed by the author himself especially regarding the use of radiation in cancer. The volume is in four parts and has a total of twenty-four chapters. Part one, the introduction, deals with the physical nature of radiation and its biologic effects. The second part is on photodynamic action. Diseases produced by light on domestic animals and on man are dealt with in parts three and four, and this material should be of interest to the dermatologist. Mathematical and chemical equations are sprinkled here and there, together with a goodly number of tables and charts. One chapter is given over to the effects of long exposure to sunlight and its possible cause of cancer. For the skin specialist this work should be on the shelves of his library, but for the general practitioner it is recommended as a reference book.

Neurology: Lectures for Medical Students and General Practitioners. By Knud H. Krabbe, M.D., Chief-Physician, the Department of Neurology, Kommunehospitalet, Copenhagen. Translation by Gerda Seidelin, M.B. Paper. Price, 12 Danish kroner. Pp. 390, with 9 illustrations. Copenhagen: Einar Munksgaard; London: Oxford University Press, 1941.

The author is a distinguished Danish neurologist who has for a quarter of a century lectured to medical students. In this book he presents his lectures in their original form, in which the material is divided according to etiology rather than according to topography or in syndromes. It is a delightful little book to peruse, lucid in its descriptions, concise and yet fairly comprehensive for the needs of the student. Unfortunately the author has chosen to include psychiatric disorders, in which he gives a poor account of himself. Only Scandinavian literature is quoted. There are few illustrations, but an adequate index is appended.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CORONARY THROMBOSIS AND VALVULAR HEART DISEASE

To the Editor:—**Are there any statistics available as to the frequency of coronary thrombosis in persons with valvular disease of the heart due to rheumatic fever?** **M.D., New York.**

ANSWER.—Adequate statistics of the incidence of coronary thrombosis in valvular disease of the heart have not been found. There are a number of reports which suggest that the incidence is low. In a paper by White and Jones on heart disease and disorders in New England (*Am. Heart J.* **3**:302 [Feb.] 1928) there was an etiologic analysis of 3,000 cardiac patients. Of the 3,000 there were 956 who were rheumatic and only 18 of these had an additional diagnosis of coronary disease, but there was no statement as to how many had coronary occlusion. In a paper by Davis and Weiss on rheumatic heart disease (*ibid.* **7**:146 [Dec.] 1931) it is stated that in 474 necropsies only 41 cases of rheumatic heart disease had an association with hypertensive coronary disease, coronary disease or severe anemia, but there is no statement as to how many of the cases showed coronary occlusion. There would seem to be few.

Coombs in his book on rheumatic heart disease had little or nothing to say about the complication of coronary disease, and that is true of most papers on the subject.

There is more information from the point of view of coronary disease. There again the incidence is low. For example, among 145 cases of coronary thrombosis reported by S. A. Levine in his monograph in 1929 there were no instances of true mitral stenosis and only 1 of aortic stenosis. He spoke, however, of having seen 1 case of coronary occlusion and definite rheumatic mitral stenosis not in his original group of coronary thrombosis. There were 14 cases with some degree of stenosis of the leaflets of the aortic valve as manifested by slight fibrosis, thickened atheromatous plaques or calcification. Similar changes were found in 4 cases in the mitral valve and in 1 case in the pulmonary valve.

In some unpublished data at one hospital, among 97 autopsies in cases showing acute coronary thrombosis there was only 1 with rheumatic heart disease. There was another with a calcareous aortic stenosis. In another group of 78 autopsies at the same hospital in cases of old myocardial infarction there was 1 case of rheumatic heart disease. In 31 cases of old coronary thrombosis without infarction there were 2 cases of aortic stenosis.

FASTING BLOOD DONORS—POOLING OF PLASMA OR SERUM

To the Editor:—**I would appreciate some information on the following questions: 1. Is there any experimental or clinical substantiation for the statement that transfusion of "blood from a donor after ingesting food is followed by a transfusion reaction which is not to be expected in a fasting donor?" 2. In the transfusion of blood plasma or serum, are typing and cross matching necessary? Does it make any difference, in answering this question, whether the blood is from one donor or is pooled?** **Gabriel Vandama, M.D., Habana, Cuba.**

ANSWER.—1. If by "transfusion reaction" is meant a rise in temperature with or without a chill, there is no basis for the statement quoted. It is true, however, that a patient is more apt to have an urticarial reaction after the use of blood from a donor who has just eaten, provided the patient is allergic to one of the foods ingested by the donor. For this reason the routine use of fasting donors for transfusion has been advocated. If the blood is to be used for preparing plasma, the product will be much more turbid if the blood is taken from a donor after a meal than if taken from a fasting donor. Aside from the esthetic objections, it is impossible to recognize with the naked eye the presence of bacterial growth in turbid plasma.

2. The consensus is that if plasma (or serum) is prepared from individual samples of blood it is preferable to use only plasma of the same group as the patient's, since the indiscriminate use of untyped plasma would have the same objections as the indiscriminate use of the "universal donor." To eliminate the undesired isoagglutinins, several procedures have been advocated. Pooling the blood before separation of the plasma, as recommended by certain investigators (Edwards, F. R.; Kay, James, and Davie, T. B.: The Preparation and Use of Dried Plasma for Transfusion, *Brit. M. J.* **1**:377 [March 9] 1940), while efficient, has the disadvantage that the interaction between bloods of different groups may cause hemolysis, and hemolyzed plasma may cause a reaction. Therefore the approved procedure is to pool the plasma after separation from the blood. Best results are obtained with rather large pools containing ten or more samples, and with such pooled plasma the group of the patient can be disregarded. Pooling serves to diminish the titer of the isoagglutinins by two mechanisms (Levinson, S. O., and Cronheim, Anny: Suppression of Iso-Agglutinins, THE JOURNAL, May 25, 1940, p. 2097) (*a*) by simple dilution and (*b*) by neutralization of the isoagglutinins by group substances present in solution. With regard to the second mechanism, it is probably only minor, since the concentration of group substances in serum is low, in contrast, for example, to the concentration in saliva. In this connection Witebsky, KlenDshoj and Swanson (Preparation and Transfusion of Safe Universal Blood, THE JOURNAL, June 14, 1941, p. 2654) have recommended the addition of purified solutions of group substances A and B to blood of group O which is to be used for persons whose blood does not belong to group O, in order to neutralize the anti-A and anti-B agglutinins present in the blood. The routine addition of solutions of group substance to plasma would appear to make unnecessary not only grouping of the plasma but also pooling. In conclusion it may be remarked that in an emergency when plasma is at hand which has been prepared from only a single sample of blood this can probably be used with safety regardless of the group, provided the plasma is made to run into the vein slowly, since the extremely slow introduction of foreign agglutinins can be taken care of by the body without harm to the patient.

INDIGESTION AND SYNCOPE

To the Editor:—**On Sept. 6, 1940 a patient fell while at work and fractured his skull. Roentgen examination showed a linear fracture at the base in the left occipital region. He is 73 years old and has been in good health, having worked at his present job for fifteen years. He fainted once at his work twenty years ago. His blood pressure is average for his age. At the time he fell he was standing at his bench brushing a hat which had been dyed the day before and was still somewhat wet. The case is before the compensation commissioner. The insurance company is attempting to prove that because the man had eaten cucumbers for supper the night before and had complained of some "indigestion" on arriving at the shop he fainted because of his indigestion, fell and fractured his skull. The insurance company called the shop doctor as its witness, and he testified that indigestion is a common cause of fainting. I was surprised at this, as I have never seen such a case. The patient ate cucumbers two or three times a week and suffered no ill effects. The accident occurred at 8:30 a. m. Would it be reasonable to expect cucumbers eaten for supper to cause indigestion the next morning? Can you give me any figures on the incidence of fainting among people with indigestion or supply me with references? Will steady focusing of the eyes of an old person with moderate arteriosclerosis (i. e. on near objects) cause vertigo or fainting?** **Eric Ernst Stietzel, M.D., South Norwalk, Conn.**

ANSWER.—The fact that the patient had previously eaten cucumbers two or three times a week without ill effects suggests that they were not the primary cause of the "indigestion." The role played by the cucumbers is problematic. It is not clear when the dyspeptic symptoms first occurred in relation to the evening meal. If the onset was within a few hours and the symptoms persisted until the next morning, the cucumbers may have been a contributory factor. If the onset, however, was about twelve hours later, the "indigestion" may well have occurred had no cucumbers been eaten the previous night.

Figures cannot be given for the incidence of fainting in those with digestive disturbances. "Indigestion" is a vague descriptive symptom which may result from a variety of digestive diseases and disturbances, as well as from numerous conditions outside the digestive tract, such as coronary occlusion, migraine or a hyperactive carotid sinus reflex (Eusterman, G. B., and Balfour, D. C.: The Stomach and Duodenum, Philadelphia, W. B. Saunders Company, 1935, pp. 111-137). When syncope occurs it may be coincidental or caused by the same organic condition that is responsible for the "indigestion." In the latter event the incidence of fainting depends entirely on the nature of the primary disease.

When demonstrable organic disease is not found after a thorough physical, laboratory and roentgenologic examination to explain satisfactorily the "indigestion," it is often attributed to a functional digestive disturbance. Syncope may be coincidental in such persons or it may occur during attacks of acute nonspecific enteritis with severe abdominal cramps and diarrhea.

Vertigo and fainting attributed to eyestrain often appear under circumstances in which it is difficult to evaluate the etiologic importance of the eyestrain. The type and degree of

refractive error, if uncorrected, must be taken into consideration. Standing in one position for a time is not only a predisposing factor but may in itself result in syncope. Hunger, fatigue, malaise and various debilitated states also may produce syncope. When a number of these factors are present at the time of fainting, as was apparently the case in the instance cited, it is often difficult, if not impossible, to say which was the precipitating cause.

REACTION TO PITRESSIN

To the Editor:—A woman aged 51 was in excellent general condition five days after removal of a stone from one kidney pelvis except that she was somewhat distended with gas. Laxatives, enemas and the colon tube gave no appreciable relief. Ten units of pitressin was given hypodermically, followed fifteen minutes later with a soap-suds enema. The results were moderately beneficial and there was no deleterious effect. About ten hours later, as the patient was again somewhat distended with gas, the same orders were repeated. Within a few minutes after administration of the pitressin the patient became pale, felt faint and expelled a large amount of gas. The enema was given a few minutes later and was promptly expelled with a small amount of soft stool and a great abundance of gas, which left the abdomen completely relieved of distention. The patient was seen a few minutes later and was found to have a severe pallor, slight dyspnea with respiration about 30, pulse and heart rate 100, and blood pressure 130 systolic and 70 diastolic. The patient stated that she felt faint. The general picture was not such as to cause alarm except for the deathlike pallor and the fear that the mild shock—if such it was—would become progressively worse. The foot of the bed was elevated and 500 cc. of 10 per cent dextrose solution with 10 units of insulin was promptly started intravenously but administered slowly. Within a few hours the patient's condition was normal. Please explain the action of pitressin and why this second administration caused such a severe reaction when a like amount given ten hours earlier caused no reaction at all. Did the rapid collapse of the bowel cause a splanchnic congestion?

Andy Hall Jr., M.D., St. Louis.

ANSWER.—Pallor is frequent following the administration of pitressin. Kirklin and Seedorf (*Am. J. Roentgenol.* **42**:811 [Dec.] 1939) found it in 81 per cent of patients given pitressin preliminary to cholecystography. The pallor in itself is a manifestation of vasoconstriction in the skin. The vasoconstrictor effect, however, is usually generalized, leading to a variety of symptoms in addition to those resulting from increased bowel activity. The total reaction, therefore, may at times cause alarm. Because the pallor is often so striking, it may suggest that the patient is in shock. This, however, is rarely if ever the case.

Pitressin pallor gives little indication of the severity of the reaction. In fact, it is difficult to evaluate pitressin reactions at the time they occur. The symptoms, however, almost invariably subside spontaneously within a few hours and there is no apparent deleterious after-effect.

A number of competent observers have found that pitressin often causes a decrease in blood pressure. The mechanism of the simultaneous generalized vasoconstriction and fall in blood pressure is not entirely clear. There is evidence to indicate that the coronary arterioles constrict with a consequent decrease in the minute volume output of the heart. This may explain the seemingly paradoxical action of pitressin, but other factors are probably involved as well. The fall in blood pressure is usually not marked when pitressin is given intramuscularly or subcutaneously and is of interest chiefly because the term "pressor principle" is misleading in this respect.

Melville (Pressor and Oxytocic Fractions of Posterior Pituitary Extract: Comparative Effects on Blood Pressure and Intestinal Activity, THE JOURNAL, Jan. 11, 1936, p. 102) found that a marked drop in blood pressure and collapse occurred in unanesthetized dogs following the intravenous administration of moderate amounts of the pressor constituent of posterior pituitary. This effect would be lessened or abolished when the oxytocic principle was given simultaneously in sufficient dosage. These observations may explain some of the apparently conflicting reports in the literature.

Great variation in the response of the same individual to the same dose of a biologic preparation is rather common, and pitressin is no exception. In the clinical use of pitressin a "maximal" effect is seldom obtained. It is not clear what determines the degree or type of reaction. Melville found pitressin to be consistent in its effect in unanesthetized dogs when given intravenously. When administered by other routes, however, the effects were so variable that no definite conclusion could be reached.

The rapid collapse of the bowel might conceivably have been a factor; however, this seems unlikely in view of the fact that the same type and degree of reaction is frequently seen in patients without evidence of unusual abdominal distention.

It would appear, therefore, that the patient under consideration experienced a reaction to pitressin within the limits of the reactions frequently seen.

HYPERTENSION AND POSSIBLE CUSHING'S SYNDROME

To the Editor:—A young woman complains only of a slight increase in the menstrual flow and slight nervousness. She has hypertension, the cause of which has not been determined. The possibility of Cushing's syndrome, possible pituitary hyperactivity, anterior or posterior, or of some condition for which a remedy may be had, is considered. She has had the usual diseases of childhood but not scarlet fever or diphtheria. At the age of 18 the right ovary was found to be cystic and was removed to correct a menorrhagia. The blood pressure was not recorded at that time, but the urine was normal. The patient has no other complaints. She is well developed and weighs 129 pounds (58.5 Kg.). The face is of full moon type. This effect has somewhat increased during the last year with the patient's gain in weight from 115 pounds (52 Kg.) but there is no suggestion of bull neck. The blood pressure is 170 systolic and 114 diastolic, the pulse rate 122, the respiratory rate 20 and the temperature normal. The eyes are prominent but not exophthalmic. The thyroid is not palpable. The lungs are normal. The heart is not enlarged. There is a suggestive systolic shock but no thrills. The aortic second sound equals the pulmonic second. There is a definite presystolic roughness followed by a loud overactive first sound which strongly suggests mitral stenosis. On fluoroscopy there is no enlargement of the left auricle or any other chamber; the aortic knob is present. There is no prominence of the pulmonary conus. The abdomen is normal except for the operative scar. The liver and spleen are not palpable. The secondary sexual characteristics are well developed. While the heart sounds are strong and overactive, the pulse is rather weak but definitely palpable bilaterally. It is regular. The blood pressure in both arms is 170 systolic and 114 diastolic and in both legs at the popliteal fossae 200 systolic and 140 diastolic. Ophthalmoscopic examination reveals only slight spasm of the retinal arterioles. The radials are not definitely sclerotic. The blood count is normal, as is also the urinalysis. Exton's sugar tolerance studies revealed a fasting blood sugar of 83 mg.; thirty minutes after 50 Gm. of dextrose the blood sugar was 110 mg.; 50 Gm. more of dextrose was administered at this time and one-half hour later the blood sugar was 109 Gm.; one hour after this the blood sugar fell to 69 Gm. (checked twice). Basal metabolic studies revealed plus 16 and plus 19 per cent. After two weeks of bed rest and compound solution of iodine the basal metabolic rate fell to minus 5, but the pulse remained the same, 120 both at the office and while at rest at home. The heart tones have not changed, and the overactivity is still present with the same pulse of rather poor volume. With one exception of a blood pressure of 150 systolic and 90 diastolic the pressure remains between 170 systolic and 114 diastolic and 180 systolic and 120 diastolic. On exercise the heart rate rose to 136 and returned to 120 after one minute. There was no undue respiratory discomfort. Friedman's pregnancy test was negative. The electrocardiogram was normal except for the tachycardia and low R_3. The intravenous diodrast test was unsatisfactory. The roentgenograms showed no osteoporosis of the pelvic bones as one finds in Cushing's syndrome. Please suggest diagnosis and treatment.

David Scheinberg, M.D., Memphis, Tenn.

ANSWER.—Hypertension in a young woman is usually due to a chronic glomerulonephritis, pyelonephritis, polycystic kidneys, coarctation of the aorta or the condition called "essential hypertension" because of the absence of demonstrable primary disease. Transitory emotional hypertension and menopausal hypertension are apparently excluded in this case. The normal urine and renal function tests rule out chronic nephritis and pyelonephritis, while the elevated systolic blood pressure in the popliteal arteries eliminates coarctation of the aorta as a diagnostic possibility. Polycystic kidneys, unilateral atrophic pyelonephritis and a fair sized tumor of the adrenal cortex could scarcely be excluded without a retrograde pyelogram. Therefore this procedure is definitely indicated, especially in view of the unsatisfactory intravenous pyelograms. The masculinizing tumor of the ovary, or arrhenoblastoma, has little in its favor in this case.

There is insufficient basis for a diagnosis of Cushing syndrome. The result of the dextrose tolerance test and the normal menstruation speak against it. For the sake of completeness, it would be worth while to determine the value of the serum sodium, potassium, bicarbonate and chloride. A high serum sodium and bicarborate content with a low potassium level suggest hyperfunction of the adrenal cortex. Diminished concentration of urinary chloride—below 0.4 per cent—in the last four hours of a fifty-two hour period during which the patient is on a diet containing only 1.5 Gm. of sodium chloride and 4 Gm. of potassium but also receiving 10 Gm. of sodium chloride in capsules twice daily for two days, with the fluid intake at 20 cc. per kilogram of body weight for the first two days and only 5 cc. per kilogram during the four hours of the urine collection, would be supporting evidence for a Cushing syndrome (Cantarow, Abraham: *Science* **90**:375 [Oct. 20] 1939). Probably further observation of the patient for six months or a year will allow the development of more definite signs or the establishment of a diagnosis of "essential" hypertension.

Treatment depends on the diagnosis. Sufficient evidence for tumor of the adrenal cortex or arrhenoblastoma warrants surgical exploration. General hygienic measures, mild sedation with phenobarbital and prevention of further gain in weight are indicated, in addition to any necessary symptomatic treatment.

SIGNIFICANCE OF ERYTHROCYTE SEDIMENTATION RATE

To the Editor:—1. What is the significance of a change from normal in sedimentation rate in the blood of an adult? 2. What effect does an acute suppurative process such as an acute abscess have on the sedimentation rate? 3. What effect does a chronic infective process such as chronic tonsillitis or abscessed teeth have on the sedimentation rate?

M.D., Wisconsin.

ANSWER.—1. An increase in the sedimentation rate of red blood cells is usually correlated with an abnormal increase in the concentration of globulins of the blood plasma, especially plasma fibrinogen. An abnormal elevation in the concentration of plasma fibrinogen and in the sedimentation rate is one of the most frequent responses of the body to a variety of noxious stimuli such as tissue inflammation or destruction, whether traumatic, chemical, bacterial or neoplastic. It may be increased after the injection of foreign protein, small doses of liver poisons and damage from roentgen rays. Physiologically, fibrinogen production is increased in normal pregnancy. Occasionally the sedimentation rate is increased above normal associated with an elevation of the concentration of serum globulins in such diseases as cirrhosis of the liver, multiple myeloma and chronic infection. An abnormally slow sedimentation rate is not a satisfactory measure of plasma proteins and can be interpreted only as compatible with normal. For a more complete discussion of the subject, see Ham, T. H., and Curtis, F. C.: *Medicine* **17**:413 and 447 (Dec.) 1938.

2. An acute suppurative process usually produces an elevation in the sedimentation rate and in the plasma fibrinogen level after the third or fourth day, especially if there are generalized manifestations from the abscess. A localized abscess may not increase the sedimentation rate.

3. In general, chronic inflammatory processes such as chronic tonsillitis or abscessed teeth do not produce an elevation of the sedimentation rate. So-called focal infections influence the sedimentation rate more or less in proportion to the nature and severity of the pathologic process. Chronic localized infections may have no influence, whereas chronic infections characterized by exudative inflammation such as pelvic inflammatory disease, tuberculosis and chronic bronchitis may cause significant increase in both plasma fibrinogen and the sedimentation rate. For further details, see Wintrobe, M. M.: *M. Clin. North America* **21**:1537 (Sept.) 1937.

HYPERSENSITIVITY TO SOAPS

To the Editor:—An intelligent housewife, aged 42, appears to be sensitive to alkalis. Soaps used in washing dishes or for any other purpose irritate the nose and eyes, produce an eczematous rash, and once appeared to be the cause of a severe conjunctivitis difficult to overcome. If washing is done in the basement and the woman stays in another part of the house, she is still distressed. She has tried almost all brands of soap and finds little difference in them, but chip soaps give less trouble than bar soaps and Lux chips somewhat less than other kinds. A consultant specializing in allergy advised large doses of vitamins A and C. The treatment was used two months with doubtful results. Has any treatment been devised that might be helpful for this condition?

Charles W. Carter, M.D., Clinton, Ill.

ANSWER.—Hypersensitivity to soaps may be of two types: 1. Soaps may act as primary irritants for some skins and mucous membranes, largely because of their alkali content. 2. There may be a specific hypersensitivity due to one or more of the various ingredients of soap, especially cottonseed and flaxseed oils, used in the manufacture of some soaps. The advice given in this case (large doses of vitamins A and C) was presumably based on the hope of an increase in tolerance to these substances by nonspecific means. Unfortunately, in most cases, as in this, no such general method of therapy has been found which is dependable. Nor is there any reliable method of specific desensitization against hypersensitivity to soap.

The emphasis in this inquiry on soaps used in laundering suggests that either a large dose is necessary to produce symptoms or that the fine powder of soap is more effective in producing symptoms. Careful measures for avoidance of soap contacts in the form causing irritation is the only practical advice that can be given. It would be advisable to put the soap chips gently into the water to avoid the spread of the powder into the air. The basement room in which this is done should be closed off from the rest of the house to avoid air currents through ducts, doors or windows. An inspection of the home itself might suggest the best location for introducing the soap into the water and avoiding the spread of the powder to the rest of the house. After the soap is dissolved, the spread of soap particles into the air may result from violent agitation of the water, unless this is done in a closed room. Probably the best procedure, however, would be to send the clothes out to be washed.

TONSILLITIS IN DOGS AND HUMAN BEINGS

To the Editor:—My daughter, aged 23 months, has been ill once a month for the past few months with tonsillitis. She is ill about five days at a time and has the usual mixed throat culture. I should like to know whether my shepherd dog could be the transmitting object in this condition? Like all dogs, he is fond of licking. What is the advisability of tonsillectomy at this age and season?

M.D., Connecticut.

ANSWER.—Dogs suffer from acute sore throat and acute tonsillitis. Strains of streptococci isolated from acutely ill animals can produce sore throat experimentally in other animals. There is little evidence, however, that dogs can be responsible for acute sore throat in human beings. Pilot states that the bacterial strains producing tonsillitis, canine and human, are not alike. Hence in all probability the pet shepherd dog is not responsible for the child's illnesses. In fact, many children suffer from numerous attacks of tonsillitis in homes where there are no pets of any kind.

It is reasonable to contemplate tonsillectomy even though the child is rather young for this operation, for the attacks of sore throat are frequent and appear to be severe. The colder season is not as desirable as warmer and more settled weather, but in the last analysis the proper indications for operation become matters of judgment for each individual case.

Reference:

Pilot, Isadore; Buck, C.; Davis, D. J., and Eastman, D. A.: Tonsillitis in Dogs Due to Hemolytic Streptococci, *Proc. Soc. Exper. Biol. & Med.* **34**: 499-502 (May) 1936.

EMERGENCY TREATMENT OF BURNS

To the Editor:—What would be the best emergency treatment to give a patient who has just sustained a severe second and third degree burn—the treatment to be given in the home or at the office while waiting for the ambulance? (The nearest hospital here is 10 miles away.)

M.D., Illinois.

ANSWER.—In the emergency treatment of burns, the most important early consideration is the relief of pain and the treatment of shock. When a person suffers an extensive burn, attempt should not be made to remove clothing. The patient should be covered with warm blankets and an effort made to conserve body heat. Sterile sheets and clean blankets should be carried in emergency kits designed for the treatment of burns. Warm fluids should be given by mouth. Pain should be relieved by adequate doses of morphine sulfate. Seriously burned patients may be immersed in a tub of warm water the temperature of which is from 95 to 100 F. This is done without removing the clothing. This procedure has the effect of supplying external heat and also of allaying pain.

When extensive burns occur on uncovered areas they may be treated as an emergency measure by the application of large wet dressings of sodium bicarbonate solution 10 per cent. Sodium bicarbonate may be kept in the emergency kit in any amounts which, when mixed with stated amounts of sterile water, will give the proper solution. For instance, 100 Gm. of sodium bicarbonate to 1 quart of sterile water makes a 10 per cent solution. The application of wet dressing of this type does not interfere with the subsequent treatment of the wound by other methods which the attending physician may prefer.

TULAREMIA AND IMMUNITY

To the Editor:—Does an attack of tularemia confer a lasting immunity? A patient had it last fall. He will not do any more hunting if there is a possibility of again contracting the disease. I find no information on the subject in textbooks.

M.D., Illinois.

ANSWER.—One attack of tularemia confers permanent immunity.

SINUS PERICRANII

To the Editor:—I should like to take issue with the statement on page 236 of The Journal for July 19, 1941 to the effect that "sinus pericranii . . . is seen only in conjunction with tumors of the brain." A sinus pericranii is a saccular cavity, often loculated, lying between the scalp and the skull usually in the neighborhood of the superior longitudinal sinus, although I have seen one in relationship to the lateral sinus. These blood filled cavities usually communicate with the underlying sinus through an emissary vein of variable size. The contents may be fluid, in which case the cavity can be emptied by prolonged external pressure or they may be coagulated. Sinus pericranii is a congenital condition usually detected during early childhood, and is in no way related to intracranial tumors. Perhaps in this answer sinus pericranii was confused with dilatation of the extracranial venous network, which is not uncommonly seen in small children in association with intracranial hypertension.

Paul C. Bucy, M.D., Chicago.